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Final Environmental Impact Statement

Oregon Dunes NRA Management Area 10 (C) Designated Routes Project

Central Coast Ranger District-Oregon Dunes National Recreation Area,
Siuslaw National Forest
Coos, Douglas and Lane Counties, Oregon



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**Oregon Dunes NRA Management Area 10 (C) Designated Routes Project
Final Environmental Impact Statement
Coos, Douglas and Lane Counties, Oregon**

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Abstract:

This Final Environmental Impact Statement analyzes 6 alternatives related to the designation of routes and areas within Management Area 10 (C) of the Oregon Dunes National Recreation Area. Alternative 1 is the no action alternative, which would not designate any additional routes or areas open to OHVs, as portrayed on the Siuslaw National Forest Motor Vehicle Use Map (MVUM), and would enforce all user-developed routes as closed. Alternative 2 is the proposed action and would designate 3.4 miles of additional designated routes and reallocate 234 acres from MA 10 (C) to MA 10 (B) open riding. Alternative 3 would designate 3.6 miles of routes with no reallocations. Alternative 4 would designate 2.3 miles of routes and reallocate 455 acres from MA 10 (C) to MA 10 (B) open riding. Modified Alternative 4 would designate 2.3 miles of routes and reallocate 518 acres from MA 10 (C) to MA 10 (B) open riding. Alternative 5 would designate 2.9 miles of routes and reallocate 966 acres from MA 10 (C) to MA 10 (B) open riding. The Responsible Official has identified Modified Alternative 4 as the preferred alternative.

Minor Forest Plan amendments (FPAs) would be required to implement any action alternative in order to designate an additional miles of trails, and to reallocate acres of Management Area 10 (C) to Management Area 10 (B), opening these lands to cross-country OHV use.

This proposed decision would amend the Siuslaw National Forest Land and Resource Management Plan (Siuslaw Forest Plan; 1990) to:

- Provide for designation of 2.3 miles of trails beyond the 3-year window envisioned in the 1994 Dunes Plan; and
- Reallocate 518 acres from Management 10(C) – ORVs on Designated Routes Only, to Management Area 10 (B) – Open Riding

SUMMARY

In 1994, the Forest Service adopted the Management Plan for the Oregon Dunes National Recreation Area (ODNRA), hereafter called the Dunes Plan, which amended the Siuslaw National Forest Plan. The Dunes Plan established separate management areas with differing resource emphases within the ODNRA. Management Area 10 (C), or MA 10 (C), is one of these areas. The Dunes Plan specifies that MA 10 (C) areas be managed to “protect vegetated habitats while providing controlled opportunities for off highway vehicle (OHV) touring and traveling on designated routes.” It also called for the identification of additional designated routes within 3 years of approval of the plan. The Dunes Plan further states that the goal for MA 10 (C) is “to minimize OHV impacts on vegetated areas while allowing controlled opportunities for riding and travel through the area on designated routes for access to the beach and other areas which are open for off road vehicle (ORV) use.”

As the Siuslaw National Forest developed its 2009 Travel Management Plan, it became apparent that because not all the MA 10 (C) routes had been designated within 3 years of the approval of the Dunes Plan, some areas within the motorized portions of the ODNRA were largely inaccessible. As such, this project seeks to complete the designation and development of a more comprehensive and understandable designated OHV route system within MA 10 (C).

In order to accomplish this goal, this project proposes the following:

- Designate an additional 3.4 miles of OHV routes within MA 10 (C) beyond the 3 year standard and guideline timeframe identified in the Dunes Plan
- Modify some Management Area boundaries to reallocate 234 acres from MA 10 (C) to MA 10 (B)

Approximately 4,445 acres within the ODNRA are currently designated MA 10 (C). With the exception of the Riley Ranch access trail, the routes originally designated by the Dunes Plan in 1994 and those designated within three years of approval of the plan have remained the only designated routes in MA 10 (C). The incompleteness of the current route system plus the lack of adequate signing and formal closure orders for most areas allocated as MA 10 (C) permitted, and to a degree, encouraged the continued use of undesignated routes and the establishment of additional user-developed routes. As a result, the majority of existing routes traveled by OHVs within MA 10 (C) today are not designated routes.

The primary purpose and need for the project is to designate a motorized trail system that would simplify and facilitate OHV rider access through various parts of MA 10 (C) that are currently difficult to understand and navigate on the ground; would thereby encourage user acceptance of and compliance with designated route requirements; would discourage use of unauthorized user-developed routes; and would simplify OHV management within MA 10 (C), allowing agency personnel to focus more time and effort on visitor education, resource restoration and strong enforcement against those who would persist in using unauthorized routes.

The secondary purpose and need for the project is to correct OHV management inconsistencies arising from minor mapping errors between MA 10 (C) and MA 10 (B),

an area managed for open riding, that date back to the original aerial photo interpretation and vegetation typing done for the 1994 Dunes Plan. Some small areas totaling about 234 acres out of a total of about 4,445 acres allocated for OHV use as MA 10 (C) were subsequently found on the ground to better meet the appearance, conditions and management objectives of MA 10 (B). Managing areas differently that appear the same on the ground, but are allocated as different management areas is problematic for visitor understanding and education efforts as well as enforcement.

In order to provide information helpful to the preparation of a proposed action and to involve the public early in the designated route planning process, the Forest hired a private-sector contractor in July 2009 to assemble and facilitate a working group of individuals with varied interests in the Oregon Dunes. In the course of the groups' work (over a year) and subsequently in project scoping it became apparent that OHV trail riding on the maze of user-developed routes that had evolved in the absence of signing and enforcement, as well as from vegetation spread into areas that were once open sand, had become for some visitors an important recreation activity and different from open-sand riding. In earlier Dunes planning efforts OHV trail riding had not rated as a highly valued recreation experience. Open sand, largely unrestricted riding, had been and remains the primary draw for OHV recreationists to the Oregon Dunes ODNRA. In October of 2010, this working group provided ideas regarding a system of designated trails and open riding areas that they believed would meet the 1994 Plan direction.

A Notice of Intent to prepare an Environmental Impact Statement (EIS) was published in the Federal Register on June 24, 2011. A scoping letter was sent to approximately 150 individuals, groups and agencies. Over 800 scoping comment letters were received as well as petitions containing nearly 6,500 signatures and comments.

Issues raised include trail riding experience, economic impacts, invasive species, safety, wetland impacts, wildlife impacts and noise.

These issues led the agency to develop the following alternatives:

- Alternative 1-No Action; no additional routes designated and enforcing all user-developed routes as closed
- Alternative 2 (Proposed Action)- designate 3.4 miles of routes and reallocate 234 acres from MA 10 (C) to MA 10 (B) open riding
- Alternative 3 – designate 3.6 miles of routes and no Management Area land allocation changes
- Alternative 4 (Preferred Alternative) - designate 2.3 miles of routes and reallocate 455 acres from 10 (C) to 10 (B) open riding
- Alternative 5 – designate 2.9 miles of routes and reallocate 966 acres from MA 10 (C) to MA 10 (B) open riding

An analysis of these alternatives was conducted and a draft Environmental Impact Statement (DEIS) was circulated for public review and comment between October 16,

2012 and January 24, 2013; approximately 1,300 individuals, agencies and organizations provided comments on the draft EIS. Public meetings were held on November 17, 2012 in Florence and January 12, 2013 in Eugene; public comments were received by the Forest Service at these times as well.

In response to comments received on the DEIS, the Forest has developed a Modified Alternative 4 that replaces Alternative 4 as the Preferred Alternative. Modified Alternative 4 adds 23 acres to the proposed reallocation A3 in the North Riding Area in response to comments describing the importance of that area for family riding and its proximity to sand camp sites 1, 2 and 3. Modified Alternative 4 adds a 64 acre reallocation area in the North Riding Area, called A17. This new reallocation incorporates portions of A13, a reallocation that was in Alternative 5 only. Modified Alternative 4 decreased the proposed reallocation of A16 in the Middle Riding Area by 23 acres in response to comments regarding user conflicts on the adjacent non-motorized beach. Response to comments may be found in Appendix A.

- Modified Alternative 4 (Preferred Alternative) - designate 2.3 miles of routes and reallocate 518 acres from 10 (C) to 10 (B) open riding.

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CHAPTER 1. PURPOSE OF AND NEED FOR ACTION

Document Structure

The Forest Service has prepared this Final Environmental Impact Statement in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This Environmental Impact Statement discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. The document is organized into four chapters:

- *Chapter 1. Purpose and Need for Action:* This chapter includes information on the history of the project proposal, the purpose of and need for the project, and the agency's proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.
- *Chapter 2. Alternatives, including the Proposed Action:* This chapter provides a more detailed description of the agency's proposed action as well as alternative methods for achieving the stated purpose. These alternatives were developed based on issues identified by the public, the Forest and other agencies. This section also includes mitigation measures and provides a comparison table of the estimated key differences between the alternatives.
- *Chapter 3. Affected Environment and Environmental Consequences:* This chapter describes the existing environment that would be affected by the project and the environmental effects of implementing each alternative, including the proposed action. This analysis is organized by [insert topic (i.e., resource area, significant issues, environmental component)].
- *Chapter 4. Consultation and Coordination:* This chapter provides a list of preparers and agencies consulted during the development of the environmental impact statement.
- *Appendices:* The appendices provide more detailed information to support the analyses presented in the environmental impact statement.
- *Index:* The index provides page numbers by document topic.

Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the ODNRA office in Reedsport, Oregon.

Background

Congress designated the Oregon Dunes as a National Recreation Area (ODNRA) in 1972, and prescribed that it be managed for "...public outdoor recreation use and enjoyment," and for "the conservation of scenic, scientific, historic, and other values contributing to public enjoyment." The ODNRA is comprised of approximately 28,900 acres of forested areas, water and open sand areas between Florence and North Bend on the Oregon coast. This area of diverse and constantly changing landscapes is host to a wide array of outdoor recreational uses. One popular use of the area is OHV riding.

One popular use of the area is OHV riding. The ODNRA provides a riding experience almost unique in the United States, and many families travel long distance to enjoy the sand. OHV riding is a multi-generational, social experience that connects participants to each other and the

out of doors. Many families consider the opportunity to ride on the ODNRA unique and irreplaceable. OHV riders are also an important source of economic activity for coastal communities from Florence to Coos Bay. Riders travel long distances to reach the ODNRA and often stay for several days in campgrounds or hotels, purchasing supplies from local stores.

Management of the ODNRA is guided by the 1994 Oregon Dunes National Recreation Area Plan (the Dunes Plan). The Dunes Plan was adopted, following extensive public involvement and the completion of an environmental impact statement, as an amendment to the Siuslaw National Forest Land and Resource Management Plan (1990). The 1994 Dunes Plan updated and replaced the earlier 1979 Dunes Plan. The 1994 Dune Plan was appealed by 10 separate individuals or groups. Each appeal was reviewed by the Regional Office Reviewing Officer Richard Ferraro, Deputy Regional Forester. In each case he affirmed the Forest Supervisor's decision to amend the Siuslaw National Forest Plan with management with management direction for the ODNRA.

The Dunes Plan established separate management areas with differing resource emphases within the ODNRA. The Dunes Plan set conditions for OHV use within each management area under Executive Order 11644 and 36 CFR Part 295. The 11 management areas, their primary emphases, and associated acres are as follows:

- 10 (A) – Non-Motorized Undeveloped – 7,830 acres (27%)
- 10 (B) – Off-Road Vehicle Open – 5,930 acres (21%)
- 10 (C) – ORV on Designated Routes – 4,455 acres (15%)
- 10 (D) – Developed Corridors – 1,050 acres (4%)
- 10 (E) – Snowy Plover Habitat – 1,010 acres (3%)
- 10 (F) – Plant, Fish and Wildlife Habitat – 3,120 acres (11%)
- 10 (G) – Wetlands Emphasis – 2,540 acres (9%)
- 10 (H) – Wildlife and Fish Viewing – 315 acres (1%)
- 10 (J) – Recommended Wild and Scenic River – 1,090 acres (4%)
- 10 (K) – Research Natural Area – 1,190 acres (4%)
- 10 (L) – Noise Control Buffer – 370 acres (1%)

The Dunes Plan provides for two management areas that are designed primarily to accommodate OHV use at the ODNRA:

- Management Area 10 (B) includes large areas of open sand and is managed primarily for recreational OHV use;
- Management Area 10 (C) is largely vegetated, and restricts OHV use to “designated routes.”

The Dunes Plan provides that MA 10 (C) be managed to “protect vegetated habitats while providing controlled opportunities for Off Road Vehicles (ORV) touring and traveling on designated routes.” The Dunes Plan further states that the goal for this management area is “to minimize OHV impacts on vegetated areas while allowing controlled opportunities for riding and

travel through the area on designated routes for access to the beach and other areas which are open for OHV use.”

Several routes in MA 10 (C) were identified and designated in the Dunes Plan itself. These include major access points to the open sand, many of which are signed and maintained. The Dunes Plan also called for the identification of additional designated routes within 3 years of Plan approval, and the obliteration or naturalization of other non-designated, largely user-developed routes. In MA 10 (C), then, the Forest Service was directed to:

- Designate those routes open to OHV use;
- Obliterate those routes not so designated; and
- Restrict OHV use to designated routes

Staffing and budget constraints delayed this effort, as the Siuslaw National Forest focused on implementing other direction from the Dunes Plan, including restrictions on alcohol use, management of sand camping, development of additional access at Riley ranch, and recovery of the threatened snowy plover. These efforts have largely been successful: restrictions on alcohol have limited wild parties and kept the Dunes open to family recreation; sand camping remains safe, predictable, and available; the Riley Ranch campground and access trail are open and popular; and the plover populations are beginning to recover. However, the delay in designating routes in Management Area 10 (C) presents the Forest Service, counties, OHV riders and other interested parties with several management challenges.

The Dunes Plan restricts OHV use in Management Area 10 (C) to designated routes, but the only formally designated routes are the major access trails. An extensive system of unauthorized, user-developed routes continues to be used and additional routes have probably developed. None of these, except the Riley Ranch Trail, have been designated for OHV use, but undesignated routes have not been enforced as closed and allowed to re-vegetate either.

The ODNRA is an area characterized by the rapid spread of predominantly non-native, invasive plant species, especially European beachgrass (*Ammophila arenaria*). Some of the user-developed routes evolved because they were popular, regularly-used travel ways and rapid vegetation spread encroached on either side making what was once open sand a vegetated area, with a now “unauthorized” motorized trail through it. Other trails, as in the Fingers area in the Middle Riding Area, involved the gradual breakdown of upland forests as riders sought out challenging riding experiences and hill climbs.

Without a complete formal route system or adequate signing and closure orders for most of MA 10 (C), use of undesignated routes and establishment of additional user-developed routes continues. Responsible riders cannot reliably tell where riding is appropriate. As a result, the majority of existing trails within MA 10 (C) today are not designated routes. This has, in turn, led to greater and unnecessary impacts to important plant communities within and adjacent to the MA 10 (C) areas.

In 2005, the Forest Service published a final Travel Management Rule (36 CFR Part 212, Subpart B), requiring every national forest to designate those roads, trails, and areas open to motor vehicle use. Forest Service regulations (36 CFR 261.13) now prohibit use of motor vehicles that is not consistent with the designations. The Siuslaw National Forest completed the Siuslaw Travel Management Project in 2009, and has published a motor vehicle use map each

year since 2010. On most of the 630,000 acre Siuslaw National Forest, travel management was relatively simple and non-controversial. Cross-country motor vehicle use in steep, wet, densely forested lands is difficult if not impossible. However, the agency recognized in 2009 that route designation in the Oregon Dunes National Recreation Area was not complete, and would be much more complex. Until route designation is completed, OHV use on many established routes in MA 10 (C) is technically prohibited but unenforced under 36 CFR 261.13, an undesirable and unsustainable situation. The 2009 Siuslaw Travel Management Project decision pointed towards the Designated Routes Project to complete designation on the Oregon Dunes National Recreation Area.

This project redeems the Forest Service's responsibility to implement the Dunes Plan, the Travel Management Rule, and Executive Order 11644 by designating routes within MA 10 (C), providing OHV access and reasonable, enjoyable connections between valued riding areas while minimizing impacts to adjacent and intervening native plant communities and habitat.

This decision is limited in scope. While it does include two non-significant amendments to the Dunes Plan, it does not attempt to re-draw the overall balance of motorized and non-motorized allocations in the ODNRA. The Dunes Plan established that overall zoning following extensive participation by OHV riders, county governments, the environmental community, and others. The 1994 Dunes Plan was itself founded on the preceding 1979 Dunes Plan, which was developed with the help of the original Advisory Committee called for under the legislation establishing the ODNRA.

OHV riding is a legitimate and appropriate use of the Oregon Dunes, consistent with the establishing legislation for the ODNRA. This decision does not close any area zoned in the Dunes Plan for open riding. Non-motorized recreation is also an appropriate use of the Oregon Dunes. This decision does not open to OHVs any area zoned in the Dunes Plan as non-motorized. Rather, this decision addresses only Management Area 10 (C) – that portion of the ODNRA zoned for OHV use on designated routes only.

Purpose and Need for Action

The Project is needed to bring on-the-ground practice in Management Area 10 (C) into alignment with the Dunes Plan, the Travel Management Rule, and Executive Order 11644 by designating an understandable, manageable, and environmentally sustainable system of OHV routes to provide for access and enjoyment for recreational visitors. This involves two major components:

1. As directed by the Dunes Plan, the Forest Service must complete designation of appropriate routes within Management Area 10 (C) of the ODNRA. Those routes not designated for OHV use must be appropriately re-vegetated and closures must be enforced so that the purpose of the 10 (C) designation can be fulfilled, allowing OHV use on designated routes. A Forest Plan amendment would provide for designation of routes beyond the initial 3-year window envisioned in the Dunes Plan.
2. The Project also re-zones portions of Management Area 10 (C) to Management Area 10 (B) through a Forest Plan amendment, opening them to cross-country OHV use. A fundamental purpose of the 10 (C) designation in the Dunes Plan is to restrict cross-country OHV use to protect native vegetation. However, parts of Management Area 10 (C) are in fact dominated by invasive species such as European beach grass and Scots broom. In part, this reflects mapping errors that date back to the original aerial photo interpretation and vegetation typing done for the

1994 Dunes Plan. Some areas allocated as MA 10 (C) were subsequently found on the ground to better meet the appearance, conditions and management objectives of MA 10 (B). Non-native, invasive species do not need protection from impacts by OHVs. Re-zoning these areas also promotes user understanding and acceptance of restrictions that are actually needed and may further objectives for restoration of open sand.

Proposed Action

The Forest Service proposes the following action to meet the purpose and need.

Within the Oregon Dunes National Recreation Area MA 10 (C), the Siuslaw National Forest proposes to designate an additional nine OHV routes, totaling approximately 3.4 miles, as open to motorized vehicles. All proposed routes exist on the ground as historic, user-developed routes. Under 2005 Travel Management Rule provisions (36 CFR Part 212, Subpart B) existing user-developed routes not designated under this action would by definition be closed to future motorized use and would be obliterated or allowed to naturally revert.

The project would also modify Management Area boundaries, changing approximately 234 acres, encompassing about 30 miles (out of approximately 135 miles) of user-developed routes, from MA 10 (C) to MA 10 (B). The reallocation includes an area commonly known as Banshee Hill in the Umpqua Dunes riding area. Approximately 102 miles of unauthorized user-developed routes not included in the reallocation of MA10 (C) to 10 (B) would be enforced as closed under this action.

This action results in no net gain or loss of acres managed primarily for OHV use and it does not affect any other management areas.

In summary, under this proposed action, the Forest Plan would be amended:

1. to designate additional OHV routes within the 10 (C) area beyond the 3 year standard and guideline timeframe identified in the Dunes Plan
2. to modify some Management Area boundaries, reallocating those acres from MA 10 (C) to MA 10 (B)

Decision Framework

The decision to be made falls within the broad framework of the existing Forest Plan. The Forest Supervisor for the Siuslaw National Forest is the responsible official for this EIS. Prior decisions such as those made in the Dunes Plan to allocate large blocks of land as open or closed to motorized use and areas managed for habitat protection will not be revisited in this action. Given the purpose and need, the Forest Supervisor will review the alternatives, environmental consequences of each, and the public comments received in order to make the following decisions:

- Should this project be implemented as proposed, as one of the alternatives, or not at all? If the project is implemented, the Forest Supervisor would need to decide, by the alternative selected, the following:
 - Which OHV routes would be designated in Management Area 10 (C)?

- Which areas would be reallocated from riding on designated routes only to open riding?
- Will any seasonal closures of designated routes occur?
- Which Project Design Criteria and monitoring requirements would be applied?
- Which amendments to the Forest Plan, if any, would be required?

This decision may involve non-significant amendments to the Siuslaw Forest Plan in order to:

1. Designate additional OHV routes within MA 10 (C) beyond the 3 year standard and guideline timeframe identified in the Dunes Plan
2. Modify some Management Area boundaries and converting areas from MA 10 (C) to MA 10 (B)

Public Involvement

In order to involve the public early in the planning process, an OHV Designated Routes Working Group was convened in October of 2009. The Working Group was comprised of fourteen individuals representing a variety of interests in the Oregon Dunes ODNRA, who were selected and facilitated by an independent, third party facilitator contracted by the Forest. The fourteen individuals were selected by the contractor from a pool of thirty applicants.

The purpose of the group was to review existing conditions within the three OHV riding areas at the ODNRA and suggest a system of designated routes that would meet the intent of the 1994 Dunes Plan while balancing the needs and objectives of the various interests. The Group conducted its work through a series of four field trips and eight meetings. All field trips and meeting were announced and open to any interested members of the public. A Forest Service representative was available to the group for questions, but was not a participant. A Final Report containing their ideas and suggestions was published in October 2010. Some of these ideas and suggestions, along with other public comments, and agency knowledge of the area and the OHV recreational activity were used in formulating the alternatives being considered in this action.

A Notice of Intent to prepare an Environmental Impact Statement (EIS) was published in the Federal Register on June 24, 2011. A scoping letter was sent to approximately 150 individuals, groups and agencies. Over 800 scoping comment letters were received as well as petitions containing nearly 6,500 signatures and comments.

A draft Environmental Impact Statement (DEIS) was circulated for public review and comment between October 16, 2012 and January 24, 2013; approximately 1,300 individuals, agencies and organizations provided comments on the draft EIS. Public meetings were held on November 17, 2012 in Florence and January 12, 2013 in Eugene; public comments were received by the Forest Service at these times as well.

Issues

NEPA directs federal agencies to focus analysis and documentation upon significant issues related to the Proposed Action. The scoping process resulted in the identification of some

potential issues to be addressed in the EIS. An “issue” arises from the relationships between actions (proposed, connected, similar, cumulative) and environmental consequences (physical, biological, cultural, and socioeconomic). In this EIS, issues are defined as points of discussion, debate, or dispute about the environmental effects of the Proposed Action.

The Forest Service separated the issues into two groups: significant and other issues. Significant issues were defined as those directly or indirectly caused by implementing the proposed action. The Council of Environmental Quality requires the Forest Service to identify and eliminate from detailed study issues that are not significant (40 CFR 1501.7). Issues may be deemed “other” and eliminated from further analysis when the issue is outside the scope of the EIS; is already decided by law, regulation, Forest Plan, or other higher level decision; is not clearly relevant to the decision to be made; or is conjectural and not supported by scientific or factual evidence.

Using the comments from the public and other agencies, as well as internal knowledge of the area and situation, the interdisciplinary EIS team identified a list of eight issues associated with this project:

- Maintenance of the OHV trail-riding experience
- Noise impacts on nearby residents and non-motorized recreationists
- OHV impacts on native vegetation
- Rider safety
- OHV impacts on wildlife and their habitats
- OHV impacts on wetlands
- Visitation and local economic effects
- Maintenance of motorized access to designated sand camps and motorized access from sand camps within MA 10 (C) to open riding areas in MA 10 (B)

Of the eight issues, six were believed to be directly related to the decision to be made and measurable among the various alternatives, such that differences between alternatives for that issue could be readily and clearly displayed. In addition, because these issues are directly related to the decision and are measurable, alternatives can be designed to be responsive to these issues. The six issues in this category are:

- Maintenance of the OHV trail-riding experience
- OHV noise impacts on nearby residents and non-motorized recreationists
- OHV impacts on native vegetation
- OHV impacts on wildlife and their habitats
- OHV impacts on wetlands (natural/unnatural deflation plain)
- Maintenance of motorized access to designated sand camps and motorized access from sand camps within MA 10 (C) to open riding areas in MA 10 (B)

Three of these six issues (Noise, Wildlife and Natural Wetlands) were subsequently addressed through design criteria common to all the alternatives, such that the effects of alternatives on these three issues are the same for all alternatives.

Noise-

The issue of noise was incorporated into the design of each alternative. Therefore, there is no measureable difference among any of the alternatives in regard to the possible impact of noise on nearby residents and non-motorized recreationists. Noise effects will not be further visited

because no designated routes or proposed reallocations to open riding are proposed in areas that will increase sound from OHVs into residential areas or areas of quiet recreation. In fact, areas of unauthorized user-developed routes along the eastern boundary of the ODNRA from which sound funnels down into nearby communities would be enforced as closed, therefore reducing the impact of sound in all alternatives.

Wildlife and Habitats-

The issue of wildlife habitat was incorporated into the design of each alternative. All action alternatives seasonally close the Siltcoos Breach beach access to motorized vehicles from September 16 through March 14 to protect snowy plover wintering habitat.

Wetlands-

Natural Wetlands: The issue of natural wetlands was incorporated into the design of each action alternative. All action alternatives that have the potential to affect natural wetlands are required by project design criteria to be protected.

Unnatural Wetlands: Unnatural wetlands are wetlands that have developed behind foredunes and have exaggerated beyond historic size due to the introduction and establishment of European beach grass. Reallocations of areas from MA 10 (C) to MA 10 (B) were identified and mapped by comparing aerial photographs that clearly contrasted the existence of open sand areas prior to the planting of European beachgrass with currently vegetated deflation plains. These wetlands continue to increase in size eastward as the local foredune increases in height. Current OHV use in and in the vicinity of these wetlands is not inhibiting the expansion eastward of deflation plains. All alternatives restrict the current condition of OHV use in deflation plains.

This left three issues that are readily measurable and differentially affected by the alternatives.

Issues:

Issue 1: Trail Riding Experience

Changes to the OHV route designation and closure of user-developed routes under provisions at 36 CFR Part 212 may affect the quantity and quality of the OHV trail riding experience. The value of the trail riding experience for many who commented during scoping is not found on the wide connecting routes between riding areas or from the open sand to the beach, but rather in the meandering system of user-developed routes through various topography and terrain. This maze of small routes developed over many years as vegetation gradually encroached into areas that were once open sand and as visitors pioneered new routes through vegetated areas in the absence of clearly signed designated routes and effective closure efforts by the Forest Service. As these mazes of trails cannot be effectively tracked and maintained as individual trails, an effective way to continue providing this recreation opportunity is to reallocate trail maze areas as MA 10 (B) (open riding) and rely on continued use to keep the routes open and available for the trail riding experience.

Indicators for Comparing Alternatives

- Acres of user-developed routes available for continued trail riding experience (Acres of reallocation from MA 10 (C) to MA 10 (B))

- Miles of user-developed routes available

Issue 2: Native Vegetation

The proposed action may damage native vegetation. Changes to the OHV route designation and re-zones 10 (C) to 10 (B) may affect native vegetation.

Indicators for Comparing Alternatives

- Acres of native plant communities within areas proposed for reallocation from MA10 (C) to MA 10 (B)
- Potential spread of invasive plants and non-native vegetation

Issue 3: Access to Sand Camps

With the Travel Management decision, three sand camps with access only on user-developed routes became inaccessible due to the closure of those routes. In addition, four sand camps have no access to open riding areas because are located along a designated route that ends before it reaches an open riding area.

Indicators for Comparing Alternatives

- Number of sand camps for which access restored/maintained
- Number of sand camps with restored/maintained access to open riding areas

Finally, two issues were identified by the Interdisciplinary Team and mentioned by many commenters during scoping. These issues are indirectly related to the decision to be made and are not readily measurable. As it is not possible to predict exactly how the alternatives considered would affect these two issues, they cannot be used to display differences among alternatives, nor can alternatives be designed to be responsive to these issues. The two issues in this category are rider safety as well as visitation and local economic effects.

Rider Safety –

Changes to OHV route designation and the associated closure of non-designated, user-developed, unauthorized routes may affect the rider safety by concentrating riders into smaller areas and fewer routes.

Currently, there is no accurate, reliable way of tracking injuries to OHV riders within the riding areas at the ODNRA. No accurate, consistent statistics are kept at local hospital emergency rooms with regard to OHV accidents/injuries and where they occurred. Not all injured riders are transported via local ambulance services. Some are transported by friends or family and no injury/accident reports are ever completed or known to the Forest Service. Some injuries are never reported or treated. As a result, there is no baseline from which to start, so there's nothing to measure the alternatives against.

While rider density, as noted in the issue statement, is one variable that can affect overall rider safety, there are multiple other factors that determine the "safety" of the OHV riding setting and experience. Among the other considerations that affect rider safety are: rider behavior (driving safely or unsafely), speed (fast or slow), rider ability (skilled/unskilled), topography (steep/level), visibility (good/poor), familiarity with the area/terrain (familiar/not familiar), protective gear (yes/no), familiarity with the machine, and many more. Most of the variables that affect OHV rider safety, are not controlled by the Forest Service nor affected by this

decision. Past history at the Dunes seems to indicate that even in popular, most congested areas of the ODNRA vehicle on vehicle accidents are rare and most rider injuries occur in lower density areas, are due to people operating machines beyond their skill/competency level, and not from crashing into one another.

Rider density can be a partial determinant of rider safety, but it is not possible to reliably and accurately predict how any of the alternatives being considered will affect visitation and thus, rider density. Will less riding area and fewer miles of trail equate to fewer visitors and stable or reduced rider densities from the current situation? Or will visitation remain constant, despite reduced riding area and fewer miles of trail, and thus, rider density increase from current? There is no way to reliably and accurately predict this.

By its nature, OHV riding can be a high risk outdoor recreation activity. Given the numerous rider safety variables over which the Forest Service has no control and the inability to accurately predict future rider density the Forest has proposed only alternatives that it believes have a high potential for rider safety. The Forest has not proposed any alternatives believed to be potentially dangerous to OHV riders, taking into consideration the inherently dangerous aspects of the activity. The effects on rider safety of any of the alternatives being considered in this action are essentially unknowable.

Visitation and Local Economies –

Changes to OHV route designation and the associated closure of non-designated, user-developed, unauthorized routes may reduce visitation, and thereby adversely affect local economies.

The alternatives being considered in this action only indirectly affect local economies, primarily through their affect(s) on ODNRA visitation. It is difficult to know if changes brought about by any of the alternatives would also result in changes in visitation to the ODNRA and thus, perhaps a decline in economic contributions to local communities, let alone the magnitude of any such changes. Management policy, such as acres of area or miles of trail available for OHV riding, is one variable affecting peoples' decisions to visit the ODNRA for OHV riding. Other considerations that could affect peoples' visitation decisions are things such as weather, price of fuel to travel to the ODNRA and/or operate an OHV while on site, other choices of places to go for OHV riding, the state of the broader economy (individual's financial condition and ability to afford a visit to the ODNRA), other vacation/recreation choices (other than OHV riding), available time for vacation/OHV riding, and numerous others. All the variables that affect a person's decision as to whether or not to visit the Oregon Dunes ODNRA to ride OHVs interact with each other making it impossible to predict in advance how any single variable, such as change in local management policy, is going to affect their decision to visit or not and thus, their financial impact on local communities.

Another factor complicating prediction of visitation and economic effects is the phenomenon of "backfill". Backfill may occur where as some recreationists choose not to visit, it creates a changed situation that may then encourage other visitors to fill in behind them, To what extent visitation may decline and backfill may occur cannot be reliably and accurately predicted.

The best predictor, as to how management changes may affect OHV visitation and use of the ODNRA, may be what has happened in similar prior situations. In the past 15+ years, three decisions have imposed rather significant management changes for OHV use at the ODNRA.

The three decisions are the 1994 Oregon Dunes Plan, the 2003 alcohol ban in OHV riding areas, and the 2005 designated-site sand camping decision. During scoping and public comment for each of these decisions some predicted a decline in OHV visitation if the decision was enacted. That did not occur. Despite enactment of all three decisions, OHV use did not noticeably decline and there were no significant adverse economic effects in local communities.

The ODNRA is one of the premier OHV riding areas in the United States, certainly on the west coast. That status is based on numerous factors. Whether the management changes contained in any of the alternatives for this action will significantly change enough of those factors to change the ODNRA's overall status for significant numbers of OHV riders such that they would stop visiting is a matter of question and essentially unknowable with any degree of certainty.

CHAPTER 2. ALTERNATIVES, INCLUDING THE PROPOSED ACTION

Introduction

This chapter describes and compares the alternatives considered for the Management Area 10 (C) Designated Routes Project. It includes a description and map of each alternative considered. It also presents the alternatives in comparative form, defining the differences between alternatives and providing the decision maker a clear basis for choice among options. Some of the information used to compare the alternatives is based upon the design of the alternative and some of the information is based upon the differing environmental, social and economic effects of implementing each alternative.

Alternatives Considered in Detail

The Forest Service developed six alternatives, including the No Action and Preferred Action, Modified Alternative 4, in response to the issues raised by the public, by other agencies and internally. Alternatives provide different ways to fulfill the purpose and need and address unresolved conflicts related to the proposed action. Although significant issues were considered in the development of all the action alternatives, the following table is an overview of the specific significant issues that drove the development of each alternative.

Significant Issue	Alt. 1 (No Action)	Alt. 2 (Proposed Action)	Alt. 3	Alt. 4	Modified Alt. 4 (Preferred Alternative)	Alt. 5
Trail Riding Experience		✓		✓	✓	✓
Native Vegetation		✓	✓	✓	✓	
Sand Camp Access		✓		✓	✓	✓

Table 1. Issues Driving Alternatives

The Project Area

The Dunes Plan identified three relatively large and geographically distinct OHV riding areas within the ODNRA. All three areas, north, middle and south, include a mixture of MA 10 (C) (OHVs on designated routes) and 10 (B) (OHVs on open sand) allocations. Each alternative discussion will include a breakdown of proposals by north, middle and south riding area. The northern riding area runs south from the South Jetty Road to just north of the Siltcoos River. The middle riding area runs from the Siuslaw National Forest boundary (south of Winchester Bay

and west of Highway 101) south to the Douglas County-Coos County line. The southern riding area runs from Tenmile Creek in the north to the Horsfall Road in the south.

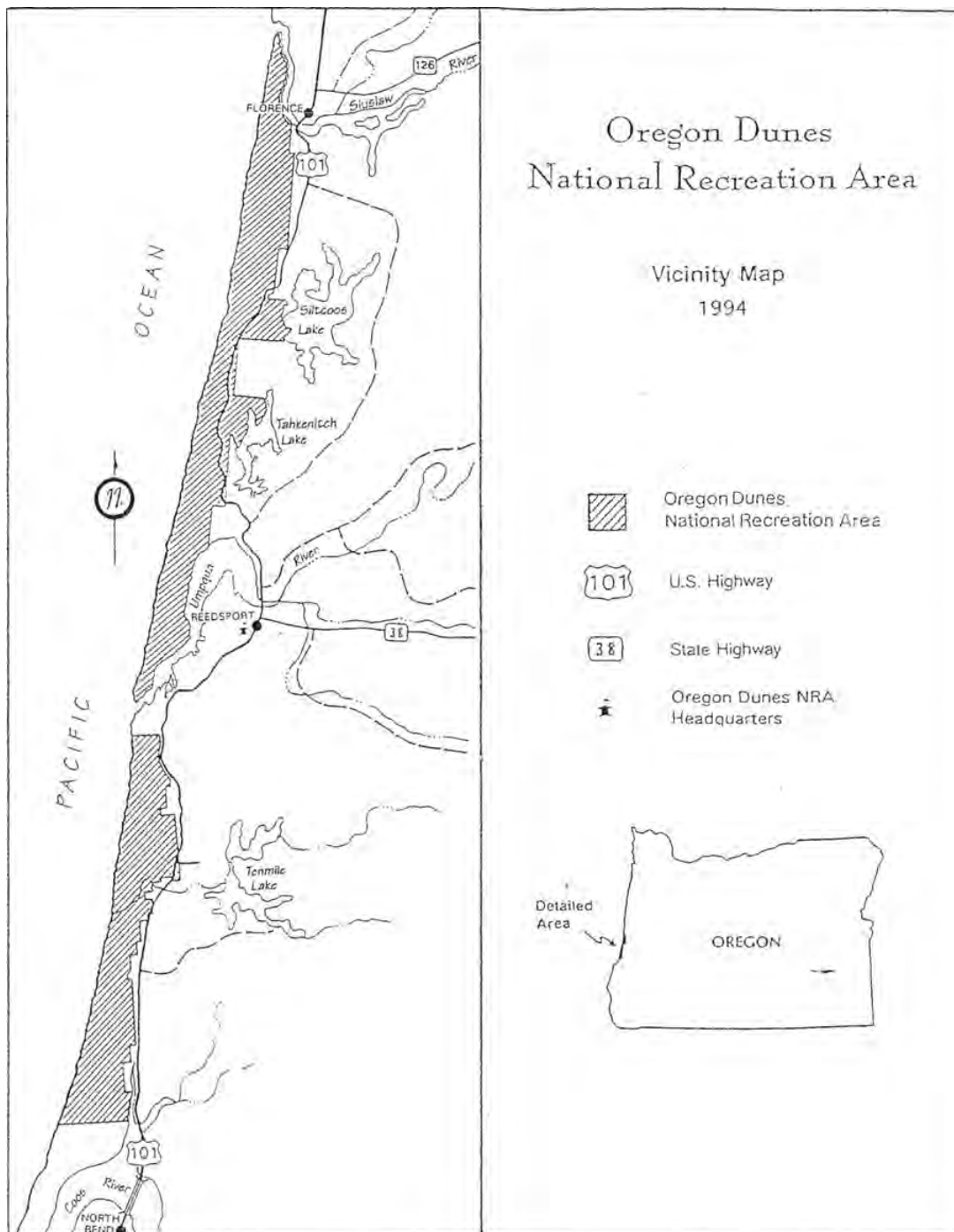


Figure 1. Vicinity Map

Existing Condition

For this project, it is important to clarify the distinction between the existing condition and No Action (Alternative 1). In most projects, no action is the same as the existing condition. However, in this case, No Action means only the currently existing designated routes identified in the 2009 Travel Management decision would be available for OHV use. No additional routes would be identified and none of the 135 miles of user-developed routes would be retained for OHV use. No Action would represent the biggest change from the existing condition of all the alternatives considered. Only the 34 miles of existing designated routes would remain. Preserving the status quo by designating all 135 miles of user-developed routes is addressed at the end of Chapter 2, Alternatives Considered but Eliminated from Further Study.

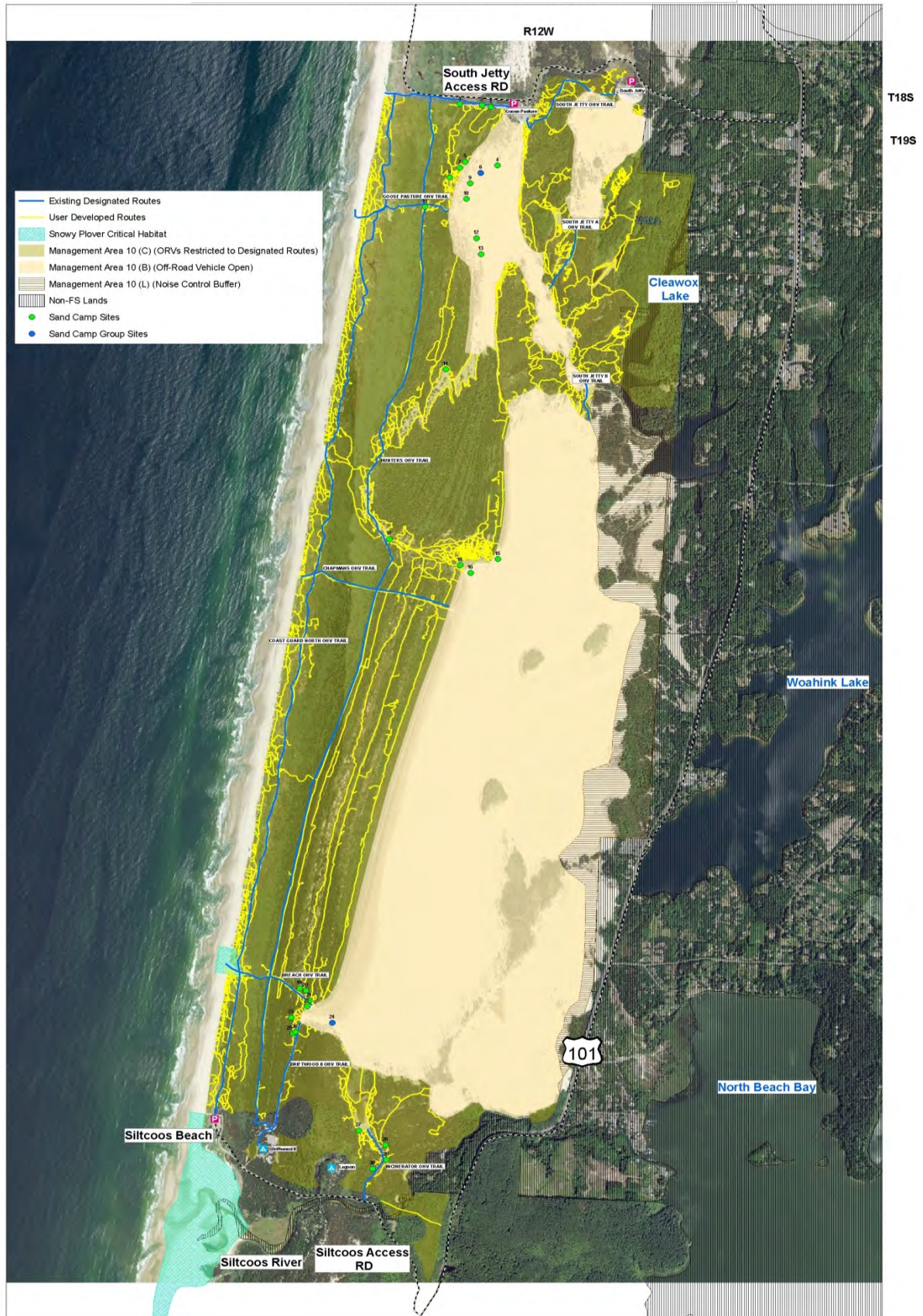
Alternative 1 - No Action

Under the No Action alternative, current management plans would continue to guide management of the project area. No additional routes would be designated and no management areas would be reallocated to accomplish the identified project goals.

This alternative represents the most radical change in OHV opportunities of all the alternatives. User-developed routes within areas of MA 10 (C) not designated in the 2009 Travel Management Decision were, by definition, closed to motorized use when the initial Siuslaw National Forest Motor Vehicle Use Map was published on December 31, 2009. However, those routes and areas have not yet been physically closed nor stringently enforced on the ground. OHV riders have continued to ride on many miles of user-developed routes in MA 10 (C), pending completion of this decision to designate additional routes. Once this effort is complete, those routes and areas not designated in the 2009 Travel Management decision or in this, the MA 10 (C) Designated Routes decision, will be formally closed and strictly enforced under provisions of the 2005 Travel Management Rule (36 CFR Part 212).

Standard and Guideline C-3 in the Dunes Plan requires that all routes not designated be obliterated or allowed to revert naturally. Currently there are approximately 135 miles of undesignated, user-developed routes in MA 10 (C) of the ODNRA that would be obliterated or allowed to revert naturally under this alternative. The designation and development of a comprehensive, complete and understandable OHV designated route system within the MA 10 (C) areas of the ODNRA that could be effectively managed and maintained would not occur. As such, this alternative does not meet the purpose and need for this project.

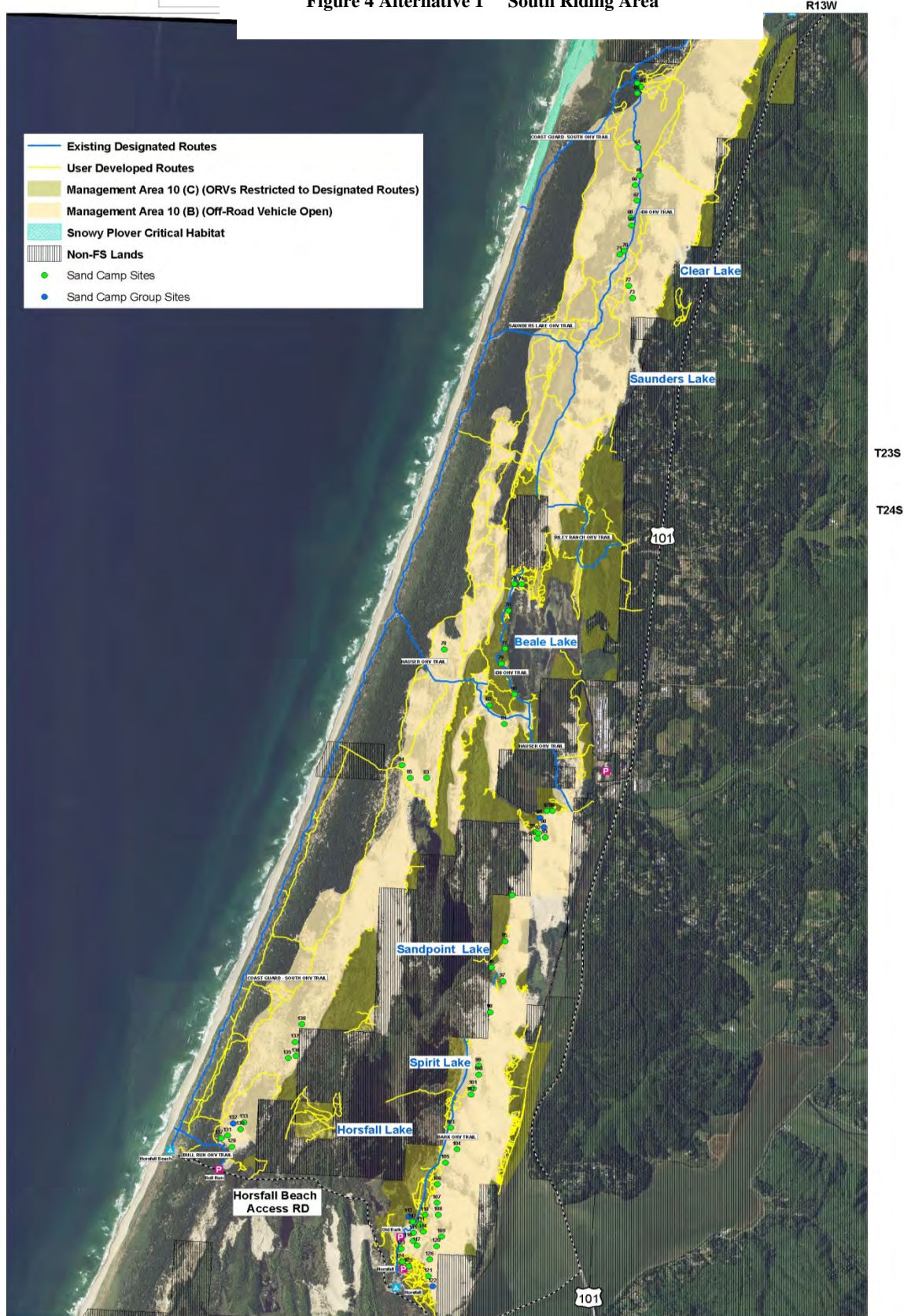
ODNRA Management Area 10 (C) Route and Area Designation
Figure 2 Alternative 1 North Riding Area



ODNRA Management Area 10 (C) Route and Area Designation
Figure 3 Alternative 1 Middle Riding Area



ODNRA Management Area 10 (C) Route and Area Designation
Figure 4 Alternative 1 South Riding Area



Alternative 2 - Proposed Action

This alternative designates an additional nine OHV routes, totaling approximately 3.4 miles. All proposed routes exist on the ground as historic, user-developed routes and thus would involve no major construction or new ground-disturbing activity except mechanically widening an existing 0.1 mile user-developed route, R16. Any user-developed routes not designated in this alternative would be enforced as closed to motorized use and obliterated or allowed to naturally revert.

This alternative would also modify Management Area boundaries, reallocating approximately 234 acres, containing about 30 miles of user-developed routes, from MA 10 (C) to MA 10 (B) in order to continue to provide OHV trail riding opportunities and to manage 10 (C) areas that physically resemble adjacent 10 (B) areas in a manner consistent with MA 10 (B) management objectives. The reallocation includes an area commonly known as Banshee Hill in the Umpqua Dunes riding area. Approximately 102 miles of unauthorized user-developed routes would be closed and obliterated or allowed to revert naturally.

The development of Alternative 2 is responsive to the following issues:

- Trail Riding Experience
- Sand Camp Access
- Native Vegetation

North Riding Area

In this area 1.8 miles of additional routes would be designated. In addition, 195 acres currently in MA 10 (C) would be reallocated to MA 10 (B), making 26.4 miles of user-developed routes open to OHV use. In this area, approximately 66 miles of unauthorized routes would be enforced as closed or allowed to revert naturally.

In addition, the Breach Route through the foredune would be seasonally closed in both directions from the beach to the Coast Guard Route. The area would be closed from September 16 through March 14 to minimize conflict with wintering snowy plover habitat. An alternate route across the foredune would be provided nearby for periods when the Breach Route is seasonally closed.

Table 2. Alternative 2 -North Routes

Proposed Additional Routes in North Riding Area	Additional Miles
R 1	0.3
R 2	0.2
R 3	0.5
R 5	0.3
R6	0.4
R 16	0.1

Table 3. Alternative 2 -North Reallocations

Proposed Reallocations in North Riding Area	Acres	Miles of User-Developed Routes Open to Riding
A 1	33	10.1
A 2	156	15.2
A 3	6	1.1

Middle Riding Area

In this area 1.2 miles of additional routes would be designated. In addition, about 2 acres of the area currently known as Banshee Hill would be reallocated from MA 10 (C) to MA 10 (B), providing continued access to 0.2 miles of user-developed routes. In this area, about 13 miles of user-developed routes would be enforced as closed and obliterated or allowed to revert naturally.

Table 4. Alternative 2- Middle Routes

Proposed Additional Routes in Middle Riding Area	Additional Miles
R 8	1.2

Table 5. Alternative 2- Middle Reallocations

Proposed Reallocations in Middle Riding Area	Acres	Miles of User-Developed Routes Open to Riding
A 15	2	0.2

Southern Riding Area

In this area, 0.5 miles of additional routes would be designated. In addition, 37 acres would be reallocated from MA 10 (C) to MA 10 (B), making nearly 4 miles of user-developed routes open to OHV use. In this area, about 23 miles of user-developed routes would be enforced as closed and obliterated or allowed to revert naturally.

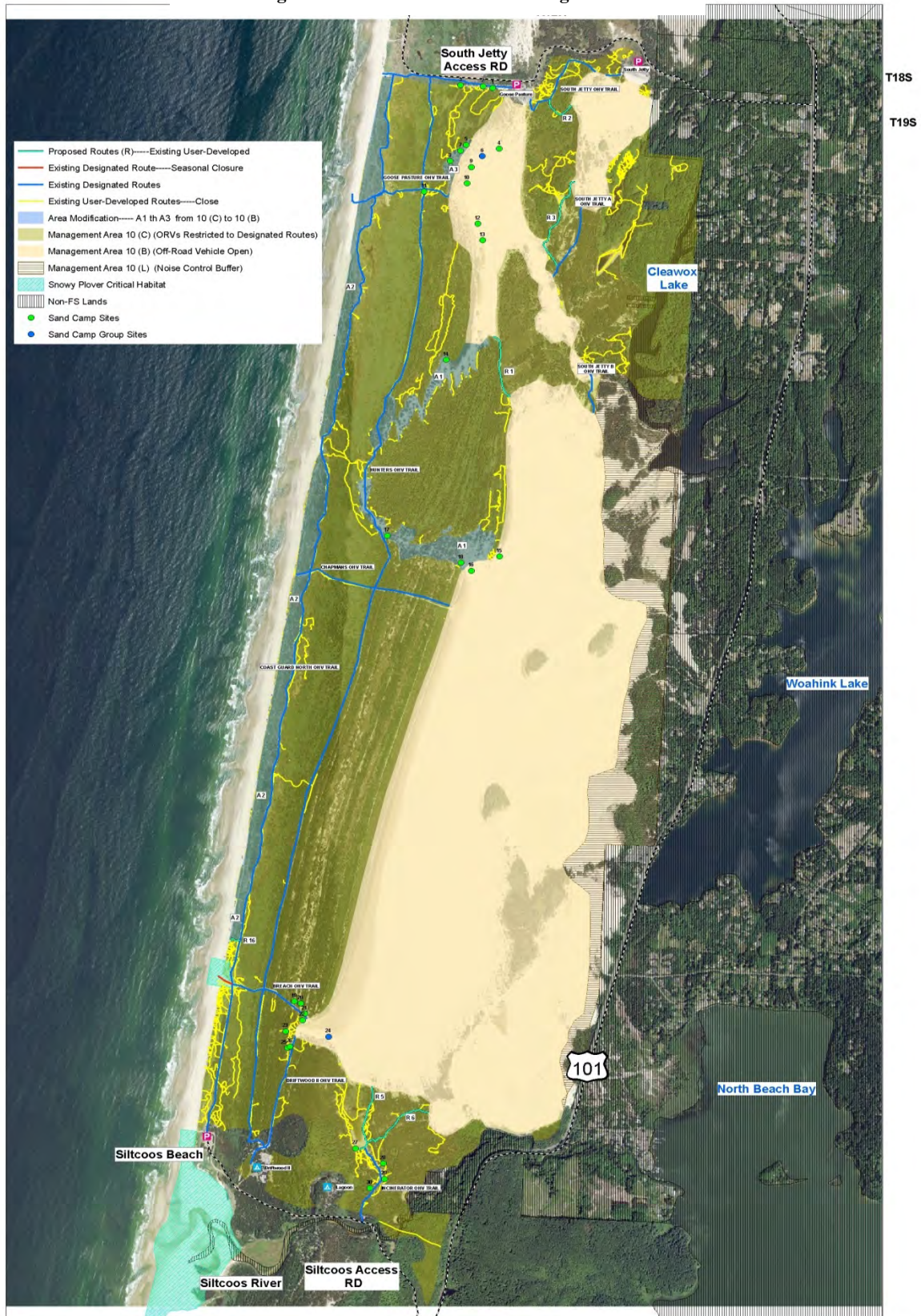
Table 6. Alternative 2- South Routes

Proposed Additional Routes in South Riding Area	Additional Miles
R 10	0.4
R 11	0.1

Table 7. Alternative 2- South Reallocations

Proposed Reallocations in South Riding Area	Acres	Miles of User-Developed Routes Open to Riding
A 4 (south)	22	2.5
A 5	15	1.3

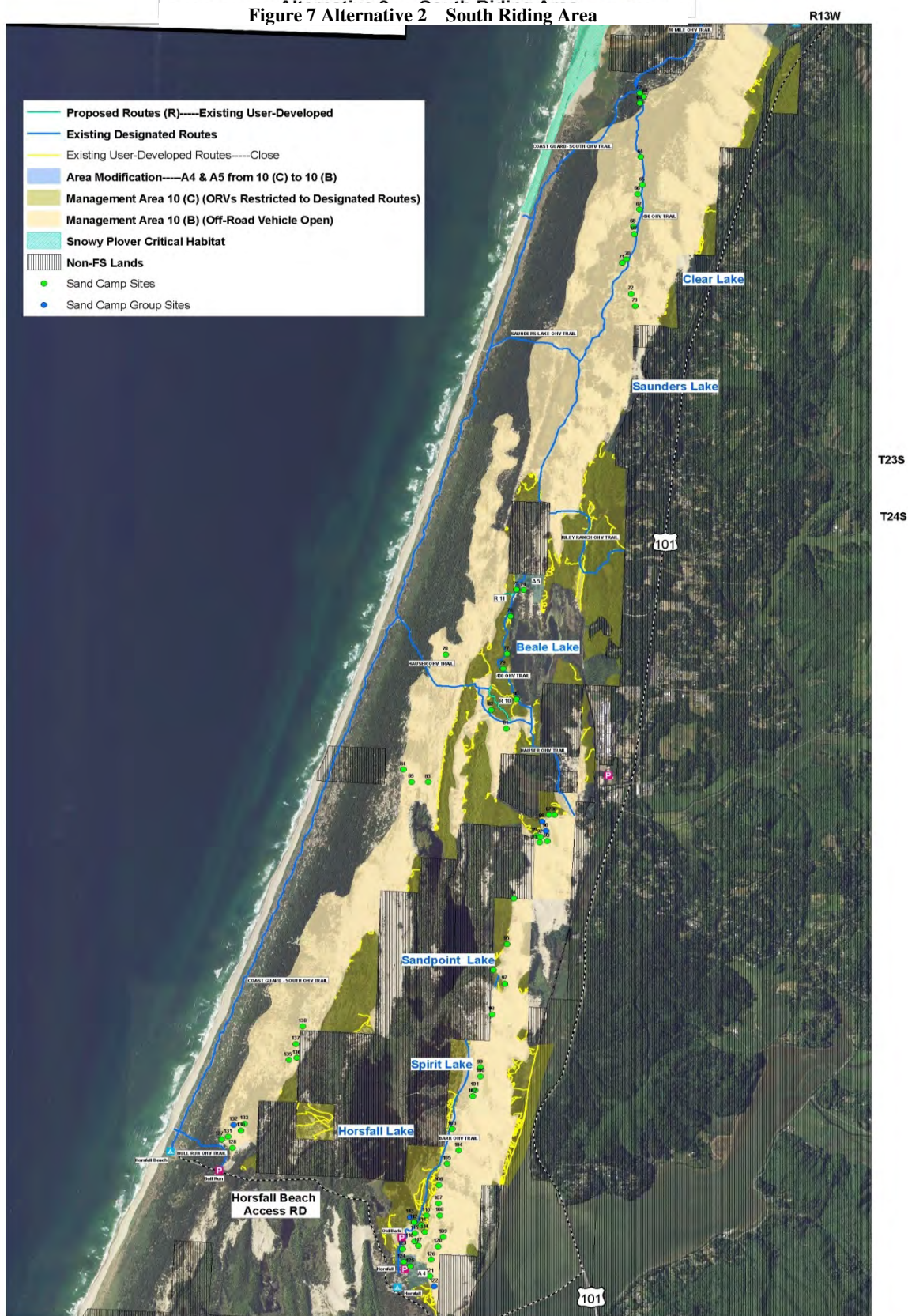
ODNRA Management Area 10 (C) Route and Area Designation
Figure 5 Alternative 2 North Riding Area





ODNRA Management Area 10 (C) Route and Area Designation

Figure 7 Alternative 2 South Riding Area



Alternative 3

This alternative designates eleven routes totaling approximately 3.6 miles as open to motorized vehicles. All proposed routes exist on the ground as historic, user-developed routes and thus would involve no major construction or new ground-disturbing activity except mechanically widening an existing 0.1 mile user-developed route, R16. Any user-developed routes not designated would be enforced as closed to motorized use and obliterated or allowed to naturally revert. Approximately 131 miles of unauthorized user-developed routes would be enforced as closed and eventually naturalized.

This alternative is based on scoping comments that recommended an alternative limited to route designation only with no reallocations from MA 10 (C) to MA 10 (B).

The development of Alternative 3 was in response to the following issues:

- Native Vegetation

North Riding Area

In this area 1.8 miles of additional routes would be designated. No areas are proposed for reallocation from MA 10 (C) to MA 10 (B). Approximately 92 miles of user-developed routes would be enforced as closed or allowed to revert naturally.

In addition, the Breach Route through the foredune would be seasonally closed in both directions from the beach to the Coast Guard Route. The area would be closed from September 16 through March 14 to minimize conflict with wintering snowy plover habitat. An alternate route across the foredune would be provided nearby for periods when the Breach Route is seasonally closed.

Table 8. Alternative 3- North Routes

Proposed Additional Routes in North Riding Area	Additional Miles
R 1	0.3
R 2	0.2
R 3	0.5
R 5	0.3
R6	0.4
R 16	0.1

Middle Riding Area

In this area 1.2 miles of additional routes would be designated. No areas are proposed for reallocation from MA 10 (C) to MA 10 (B). Approximately 13 miles of user-developed routes would be enforced as closed or allowed to revert naturally.

Table 9.- Alternative 3 Middle Routes

Proposed Additional Routes in Middle Riding Area	Additional Miles
R 8	1.2

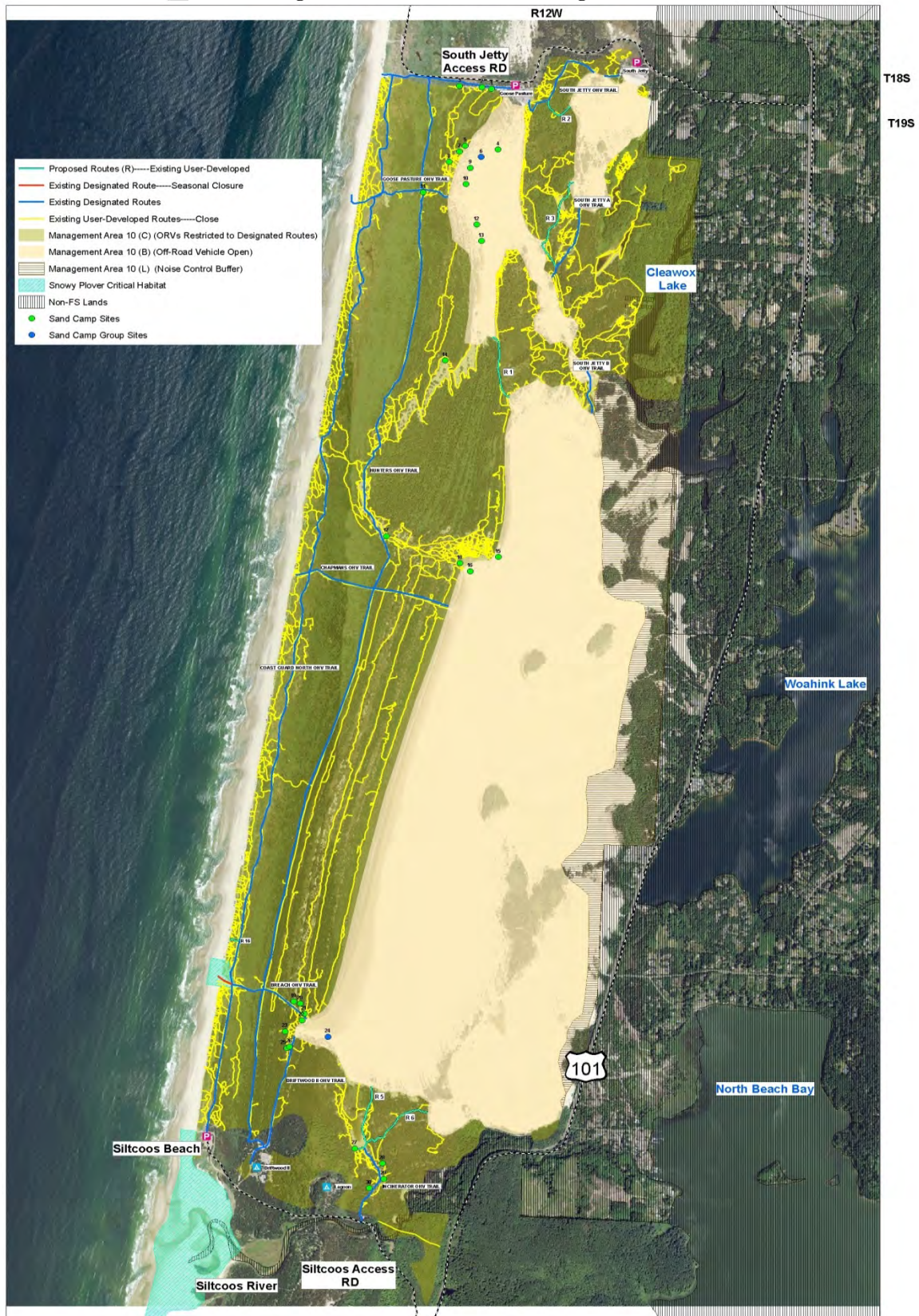
South Riding Area

In this area, 0.8 miles of additional routes would be designated. No areas are proposed for reallocation from MA 10 (C) to MA 10 (B). Approximately 26 miles of user-developed routes would be enforced as closed or allowed to revert naturally.

Table 10. Alternative 3- South Routes

Proposed Additional Routes in South Riding Area	Additional Miles
R 10	0.4
R 11	0.1
R 14	0.2
R 15	0.1

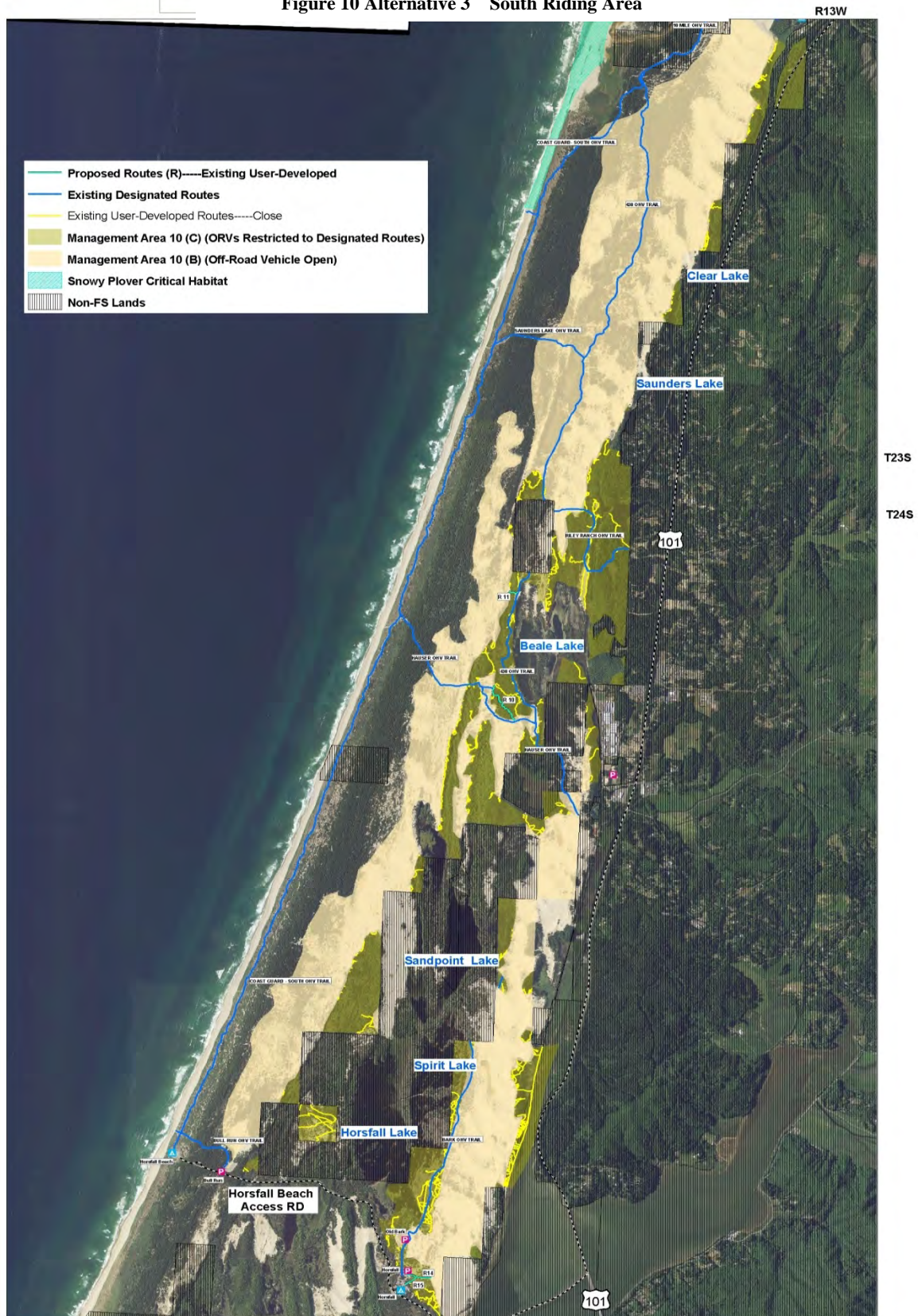
ODNRA Management Area 10 (C) Route and Area Designation
Figure 8 Alternative 3 North Riding Area



ODNRA Management Area 10 (C) Route and Area Designation
Figure 9 Alternative 3 Middle Riding Area



ODNRA Management Area 10 (C) Route and Area Designation
Figure 10 Alternative 3 South Riding Area



Alternative 4

This alternative designates eight routes totaling about 2.3 miles. All proposed routes exist on the ground as historic, user-developed routes and thus would involve no major construction or new ground-disturbing activity except mechanically widening an existing 0.1 mile user-developed route, R16. The alternative would also modify Management Area (MA) boundaries, reallocating approximately 455 acres, containing about 49 miles of user-developed routes. The reallocation from MA 10 (C) to MA 10 (B) would provide OHV trail riding opportunities. Areas that were zoned MA 10 (C) but more closely resemble MA 10 (B), would be managed to meet MA 10 (B) objectives. Approximately 84 miles of user-developed routes would be enforced as closed and obliterated or eventually naturalized under this action.

The development of Alternative 4 was in response to the following issues:

- Trail Riding Experience
- Sand Camp Access
- Native Vegetation

North Riding Area

In this area, 1.8 miles of routes would be designated. In addition, 284 acres currently in MA 10 (C) would be reallocated to MA 10 (B), providing continued access to approximately 35 miles of user-developed routes for OHV trail riding opportunities. In this area, about 57 miles of user-developed routes would be closed and obliterated or allowed to revert naturally.

In addition, the Breach Route through the foredune would be seasonally closed in both directions from the beach to the Coast Guard Route. The area would be closed from September 16 through March 14 to minimize conflict with wintering snowy plover habitat. An alternate route across the foredune would be provided nearby for periods when the Breach Route is seasonally closed.

Table 11. Alternative 4- North Routes

Proposed Additional Routes in North Riding Area	Additional Miles
R 1	0.3
R 2	0.2
R 3	0.5
R 5	0.3
R 6	0.4
R 16	0.1

Table 12. Alternative 4 -North Reallocations

Proposed Reallocations in North Riding Area	Acres	Miles of User-Developed Routes Open to Riding
A 1	33	10.1
A 2	156	15.2
A 3	6	1.1
A 6	15	1.9
A 7	26	2.4
A 8	9	1.5
A 9	6	0.5
A 10	33	2.5

Middle Riding Area

In this area, no additional routes would be designated. Approximately 134 acres currently in MA 10 C would be reallocated to MA 10 B, providing continued access to about 10 miles of user-developed routes for OHV trail riding opportunities. In this area, approximately 4 miles of user-developed routes would be closed and obliterated or allowed to revert naturally.

Table 13. Alternative 4- Middle Reallocations

Proposed Reallocations in Middle Riding Area	Acres	Miles of User-Developed Routes Open to Riding
A 15	2	.2
A 16	132	10.1

South Riding Area

In this area, 0.5 miles of routes would be designated. In addition, about 37 acres currently in MA 10 (C) would be reallocated MA 10 (B), providing continued access to about 4 miles of user-developed routes. In this area, about 23 miles of user-developed routes would be closed and obliterated or allowed to revert naturally.

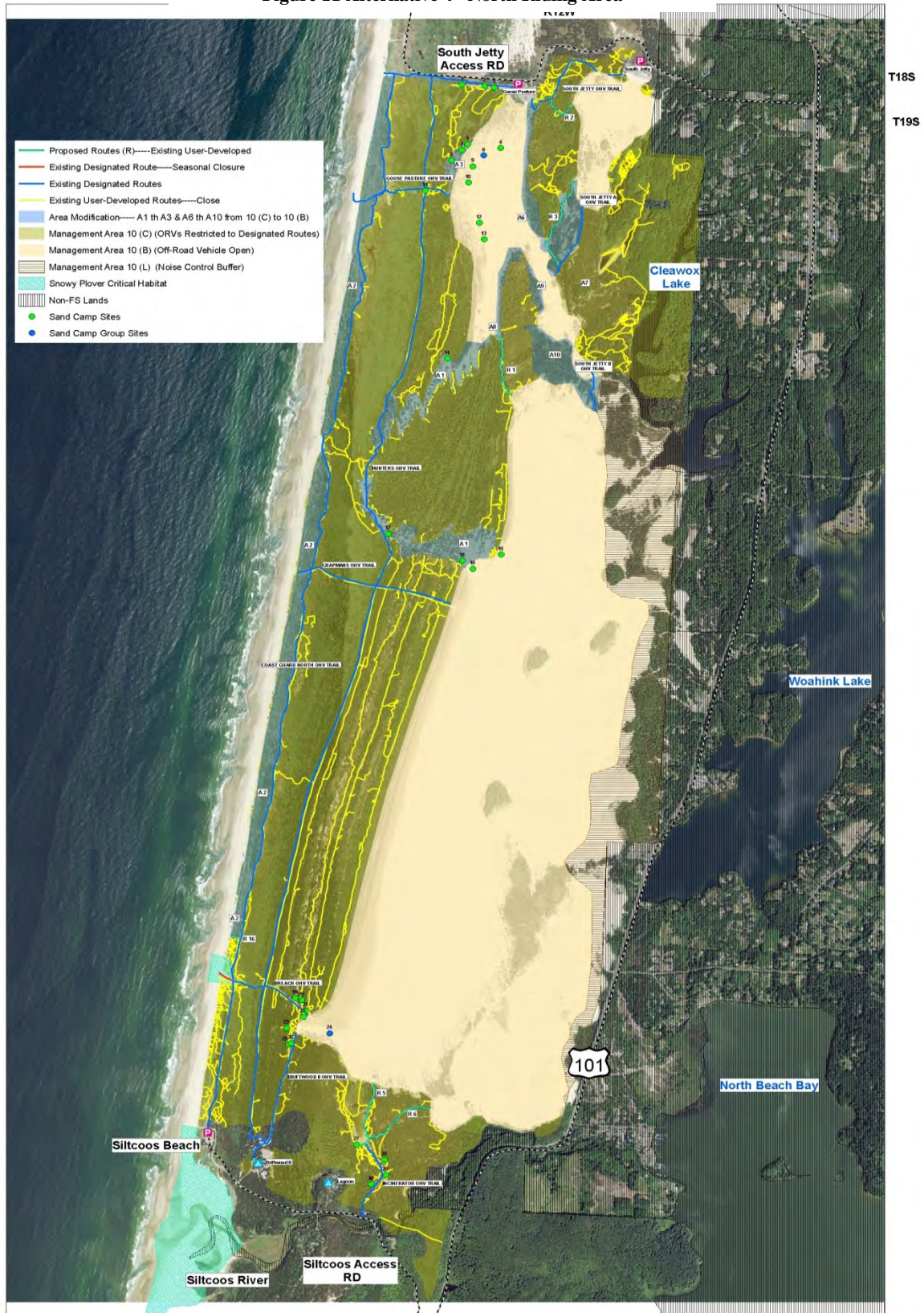
Table 14. Alternative 4- South Routes

Proposed Additional Routes in South Riding Area	Additional Miles
R 10	0.4
R 11	0.1

Table 15. Alternative 4- South Reallocations

Proposed Reallocations in South Riding Area	Acres	Miles of User-Developed Routes Open to Riding
A 4 (south)	22	2.5
A 5	15	1.3

Figure 11 Alternative 4 North Riding Area

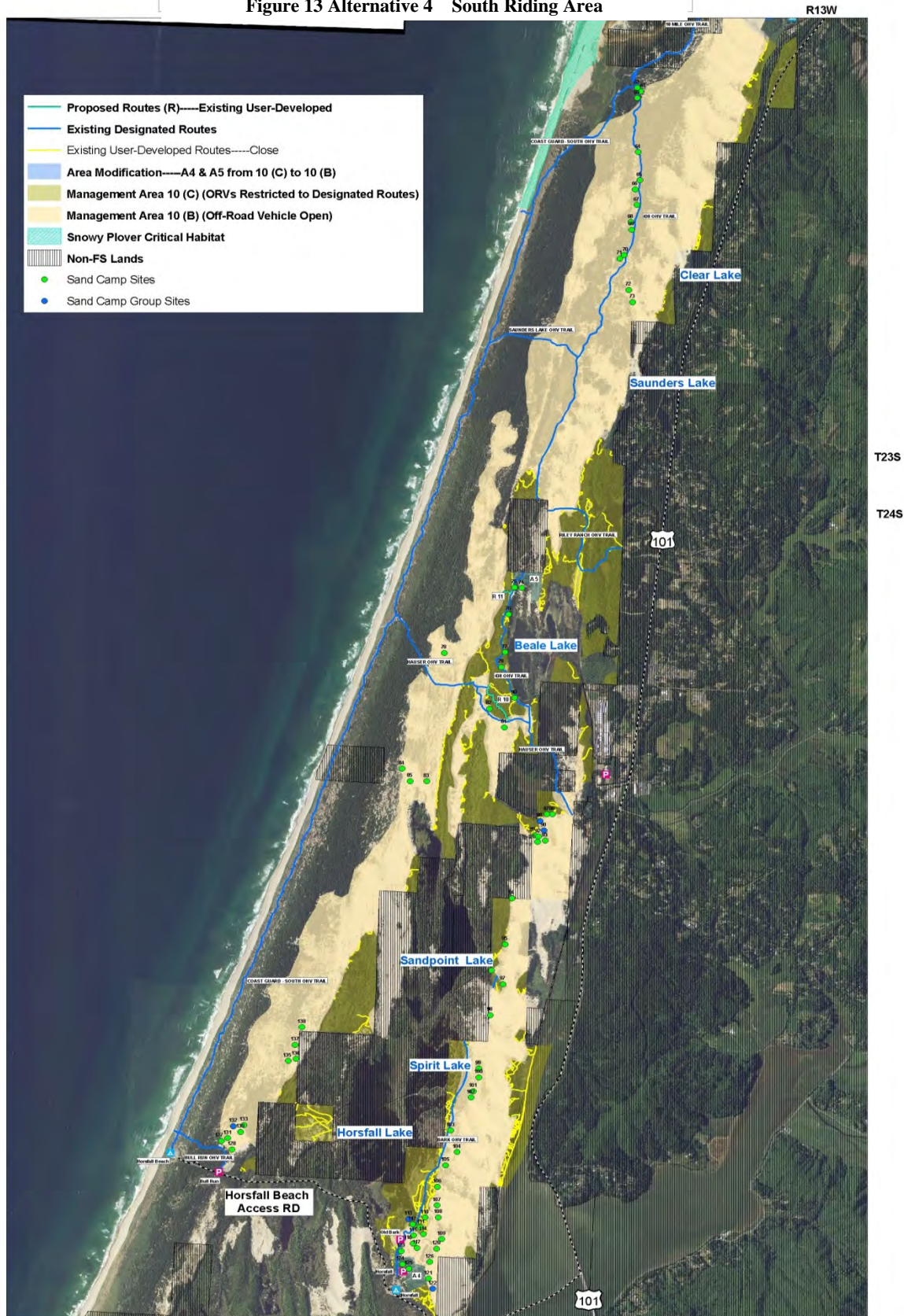


ODNRA Management Area 10 (C) Route and Area Designation

Figure 12 Alternative 4 Middle Riding Area



ODNRA Management Area 10 (C) Route and Area Designation
Figure 13 Alternative 4 South Riding Area



Modified Alternative 4-Preferred Alternative

Modified Alternative 4 carries forth all the proposals in Alternative 4 with the exception of two reallocation area modifications and one added reallocation. Modified Alternative 4 adds 23 acres to the proposed reallocation A3 in the North Riding Area in response to comments describing the importance of that area for family riding and its proximity to sand camp sites 1, 2 and 3.

Modified Alternative 4 adds a reallocation area of 64 acres in the North Riding Area, A17, in response to comments for increased trail riding in this area with no native plan associations. This new reallocation incorporates portions of A13, a reallocation that was in Alternative 5 only.

Modified Alternative 4 decreased the proposed reallocation of A16 in the Middle Riding Area by 23 acres in response to comments regarding user conflicts on the adjacent non-motorized beach.

No changes were made to the South Riding Area between Alternative 4 and Modified Alternative 4. This alternative designates eight routes totaling about 2.3 miles. All proposed routes exist on the ground as historic, user-developed routes and thus would involve no major construction or new ground-disturbing activity except mechanically widening an existing 0.1 mile user-developed route, R16. The alternative would modify Management Area (MA) boundaries, reallocating approximately 518 acres, containing about 46 miles of user-developed routes. Areas that were zoned MA 10 (C) but more closely resemble MA 10 (B), would be managed to meet MA 10 (B) objectives. Approximately 88 miles of user-developed routes would be enforced as closed and obliterated or eventually naturalized under this action.

The development of Modified Alternative 4 was in response to the following issues:

- Trail Riding Experience
- Sand Camp Access
- Native Vegetation

North Riding Area

In this area, 1.8 miles of routes would be designated. In addition, 427 acres currently in MA 10 (C) would be reallocated to MA 10 (B), providing continued access to approximately 36 miles of user-developed routes for OHV trail riding opportunities. In this area, about 56 miles of user-developed routes would be closed and obliterated or allowed to revert naturally.

In addition, the Breach Route through the foredune would be seasonally closed in both directions from the beach to the Coast Guard Route. The area would be closed from September 16 through March 14 to minimize conflict with wintering snowy plover habitat. An alternate route across the foredune would be provided nearby for periods when the Breach Route is seasonally closed.

Table 16. Modified Alternative 4- North Routes

Proposed Additional Routes in North Riding Area	Additional Miles
R 1	0.3
R 2	0.2
R 3	0.5

Proposed Additional Routes in North Riding Area	Additional Miles
R 5	0.3
R 6	0.4
R 16	0.1

Table 17. Modified Alternative 4 -North Reallocations

Proposed Reallocations in North Riding Area	Acres	Miles of User-Developed Routes Open to Riding
A 1	33	10.1
A 2	156	15.2
A 3 Modified	22	1.2
A 6	15	1.9
A 7	26	2.4
A 8	9	1.5
A 9	6	0.5
A 10	33	2.5
A17	64	1.0

Middle Riding Area

In this area, no additional routes would be designated. Approximately 111 acres currently in MA 10 C would be reallocated to MA 10 B, providing continued access to about 6.5 miles of user-developed routes for OHV trail riding opportunities. In this area, approximately 4 miles of user-developed routes would be closed and obliterated or allowed to revert naturally.

Table 18. Modified Alternative 4- Middle Reallocations

Proposed Reallocations in Middle Riding Area	Acres	Miles of User-Developed Routes Open to Riding
A 15	2	.2
A 16 Modified	109	6.3

South Riding Area

In this area, 0.5 miles of routes would be designated. In addition, about 37 acres currently in MA 10 (C) would be reallocated MA 10 (B), providing continued access to about 4 miles of user-developed routes. In this area, about 23 miles of user-developed routes would be closed and obliterated or allowed to revert naturally.

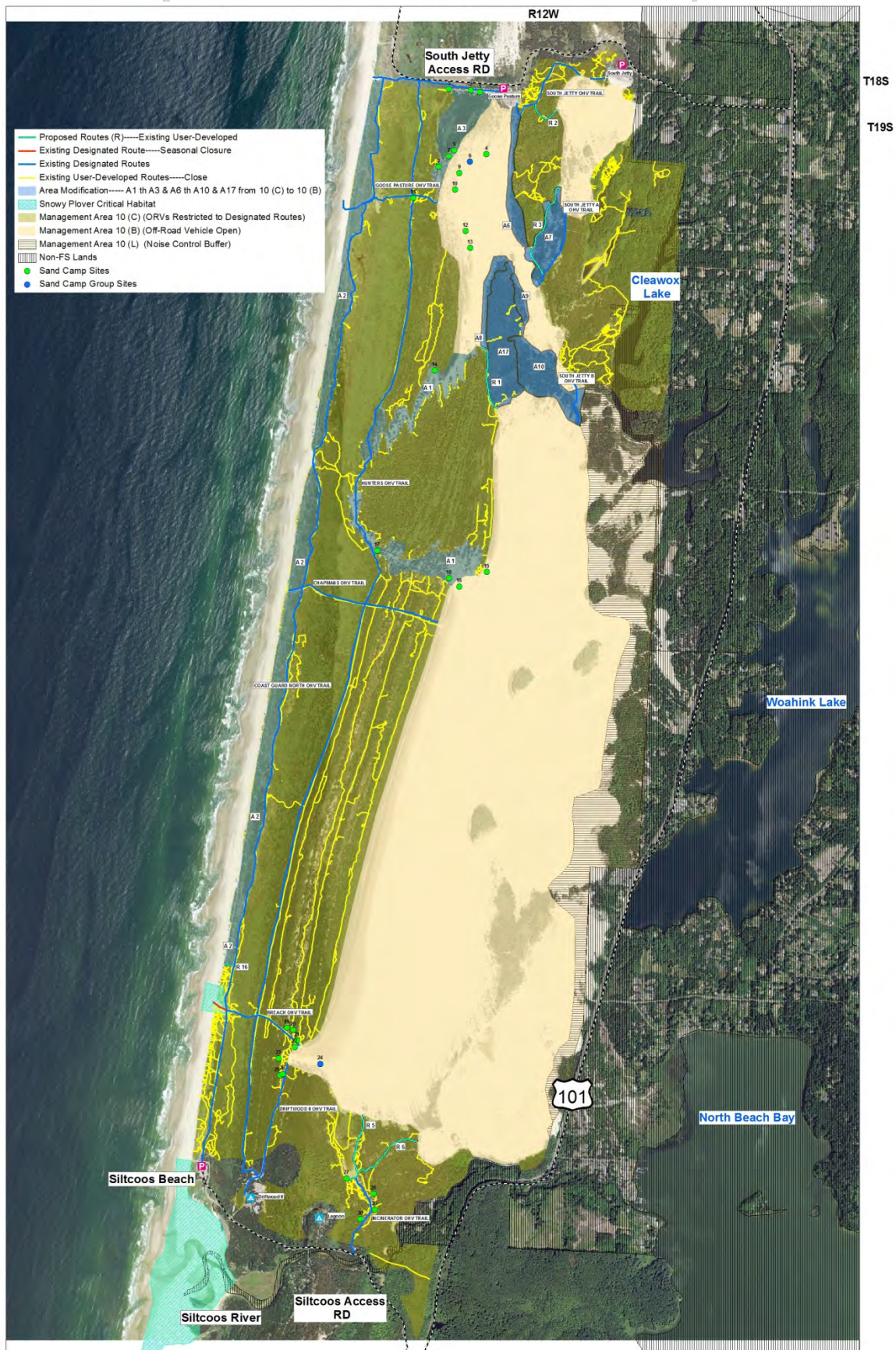
Table 19. Modified Alternative 4- South Routes

Proposed Additional Routes in South Riding Area	Additional Miles
R 10	0.4
R 11	0.1

Table 20. Alternative 4- South Reallocations

Proposed Reallocations in South Riding Area	Acres	Miles of User-Developed Routes Open to Riding
A 4 (south)	22	2.5
A 5	15	1.3

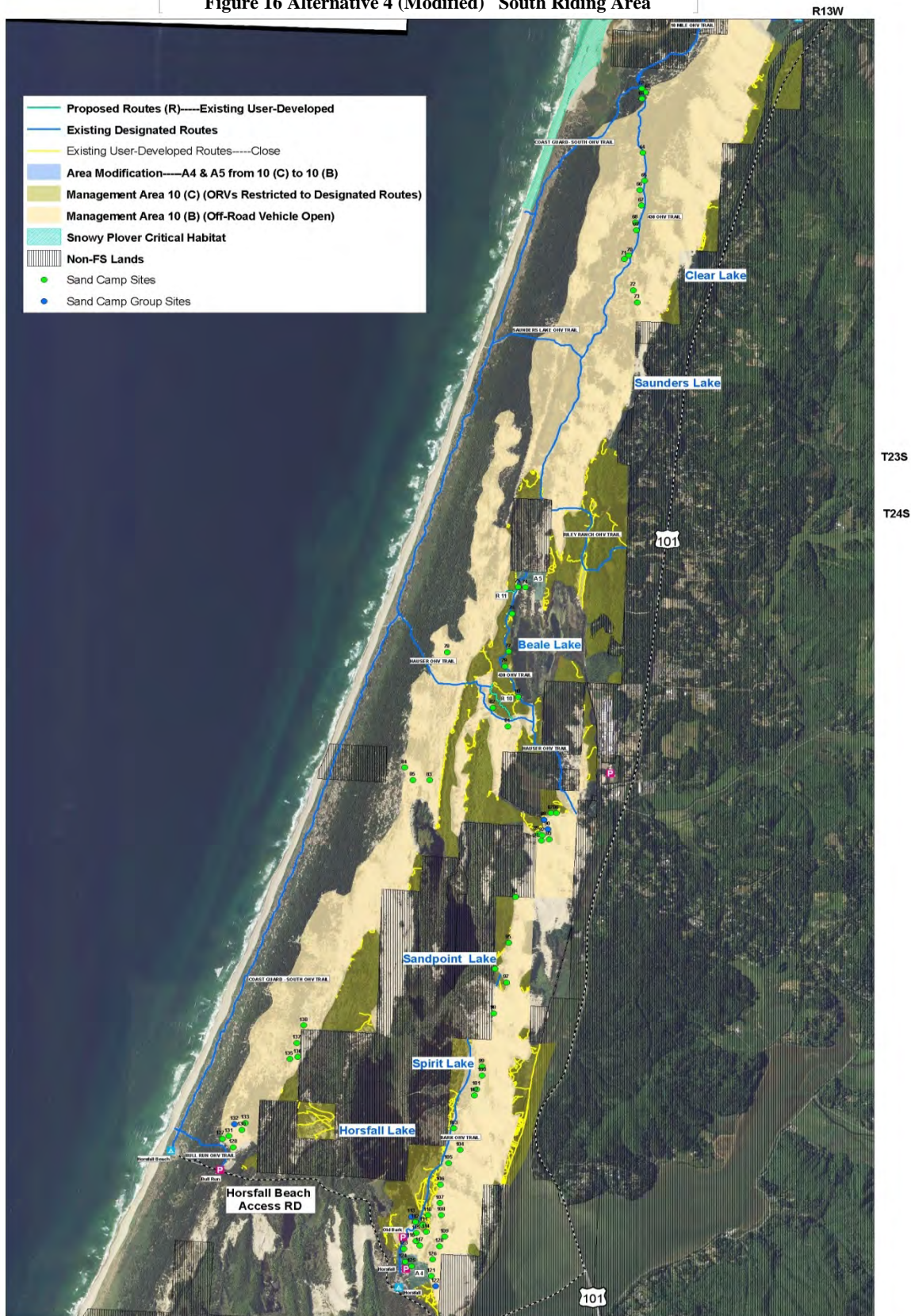
ODNRA Management Area 10 (C) Route and Area Designation
Figure 14 Alternative 4 (Modified) North Riding Area



ODNRA Management Area 10 (C) Route and Area Designation
Figure 15 Alternative 4 (Modified) Middle Riding Area



ODNRA Management Area 10 (C) Route and Area Designation
Figure 16 Alternative 4 (Modified) South Riding Area



Alternative 5

This alternative includes the proposed designation of ten additional routes for a total of 2.9 additional miles. All proposed routes exist on the ground as historic, user-developed routes and thus would involve no major construction or new ground-disturbing activity except mechanically widening an existing 0.1 mile user-developed route, R16. Alternative 5 also includes 12 areas that would be reallocated from MA 10 (C) to MA 10 (B). In total, about 966 acres, the most of all the alternatives, are proposed for reallocation. Within those acres, about 70 miles of user-developed routes would remain available to OHV riding. Approximately 62 miles of user-developed routes would be closed and obliterated or eventually naturalized under this action.

The development of Alternative 5 was driven by the following significant issues:

- Trail Riding Experience
- Access to Sand Camps

North Riding Area

In this area, 1.8 miles of additional routes would be designated. In addition, about 788 acres currently in MA 10 (C) would be reallocated to MA 10 (B), providing continued access to about 55 miles of user-developed routes. In this area, approximately 37 miles of user-developed routes would be enforced as closed and obliterated or allowed to revert naturally.

In addition, the Breach Route through the foredune would be seasonally closed in both directions from the beach to the Coast Guard Route. The area would be closed from September 16 through March 14 to minimize conflict with wintering snowy plover habitat. An alternate route across the foredune would be provided nearby for periods when the Breach Route is seasonally closed.

Table 21. Alternative 5- North Routes

Proposed Additional Routes in North Riding Area	Additional Miles
R 1	0.3
R 2	0.2
R 3	0.5
R 5	0.3
R 6	0.4
R 16	0.1

Table 22. Alternative 5 -North Reallocations

Proposed Reallocations in North Riding Area	Acres	Miles of User-Developed Routes Open to Riding
A 1	33	10.1
A 2	156	15.2
A 3	6	1.1
A 6	15	1.9
A 12	50	6.5
A 13	112	5.4
A 14	416	15.1

Middle Riding Area

No additional routes would be designated in this area under Alternative 5. Approximately 134 acres currently in MA 10 (C) would be reallocated to MA 10 (B), providing access to 10.3 miles of user-developed routes for OHV trail riding opportunities. In this area, about 4 miles of user-developed routes would be enforced as closed and obliterated or allowed to revert naturally.

Table 23. Alternative 5- Middle Reallocations

Proposed Reallocations in Middle Riding Area	Acres	Miles of User-Developed Routes Open to Riding
A 15	2	0.25
A 16	132	10

South Riding Area

In this area, about 1 mile of additional routes would be designated. In addition, about 44 acres currently in MA 10 (C) would be reallocated to MA 10 (B), providing continued access to about 4 miles of user-developed routes for OHV trail riding opportunities. In this area, about 21 miles of user-developed routes would be enforced as closed and obliterated or allowed to revert naturally.

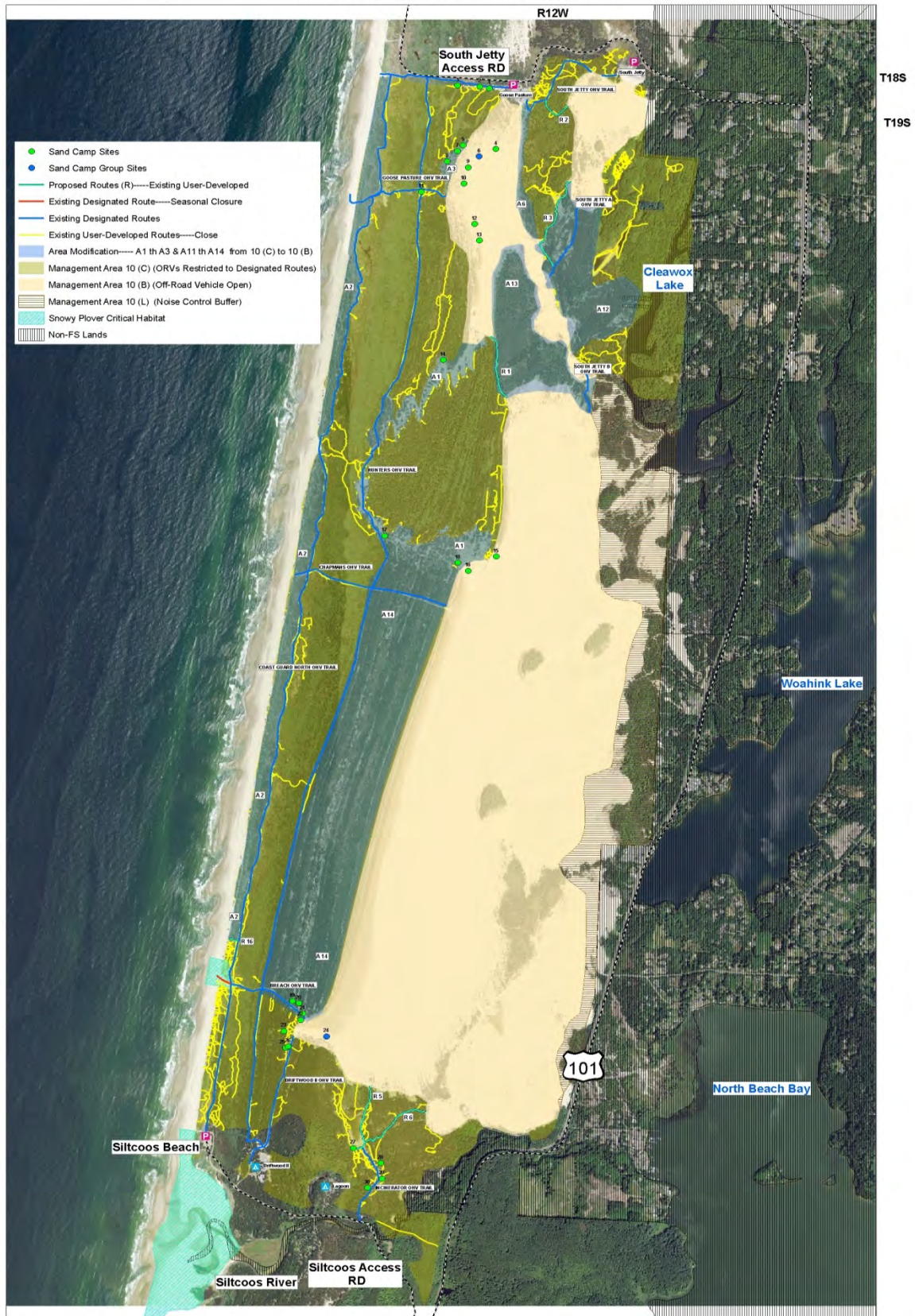
Table 24. Alternative 5 -South Routes

Proposed Additional Routes in South Riding Area	Additional Miles
R 10	0.4
R 11	0.1
R 12	0.4
R 13	0.2

Table 25. Alternative 5- South Reallocations

Proposed Reallocations in South Riding Area	Acres	Miles of User-Developed Routes Open to Riding
A 4 (south)	22	2.5
A 4 (north)	7	0.5
A 5	15	1.3

ODNRA Management Area 10 (C) Route and Area Designation
Figure 17 Alternative 5 North Riding Area

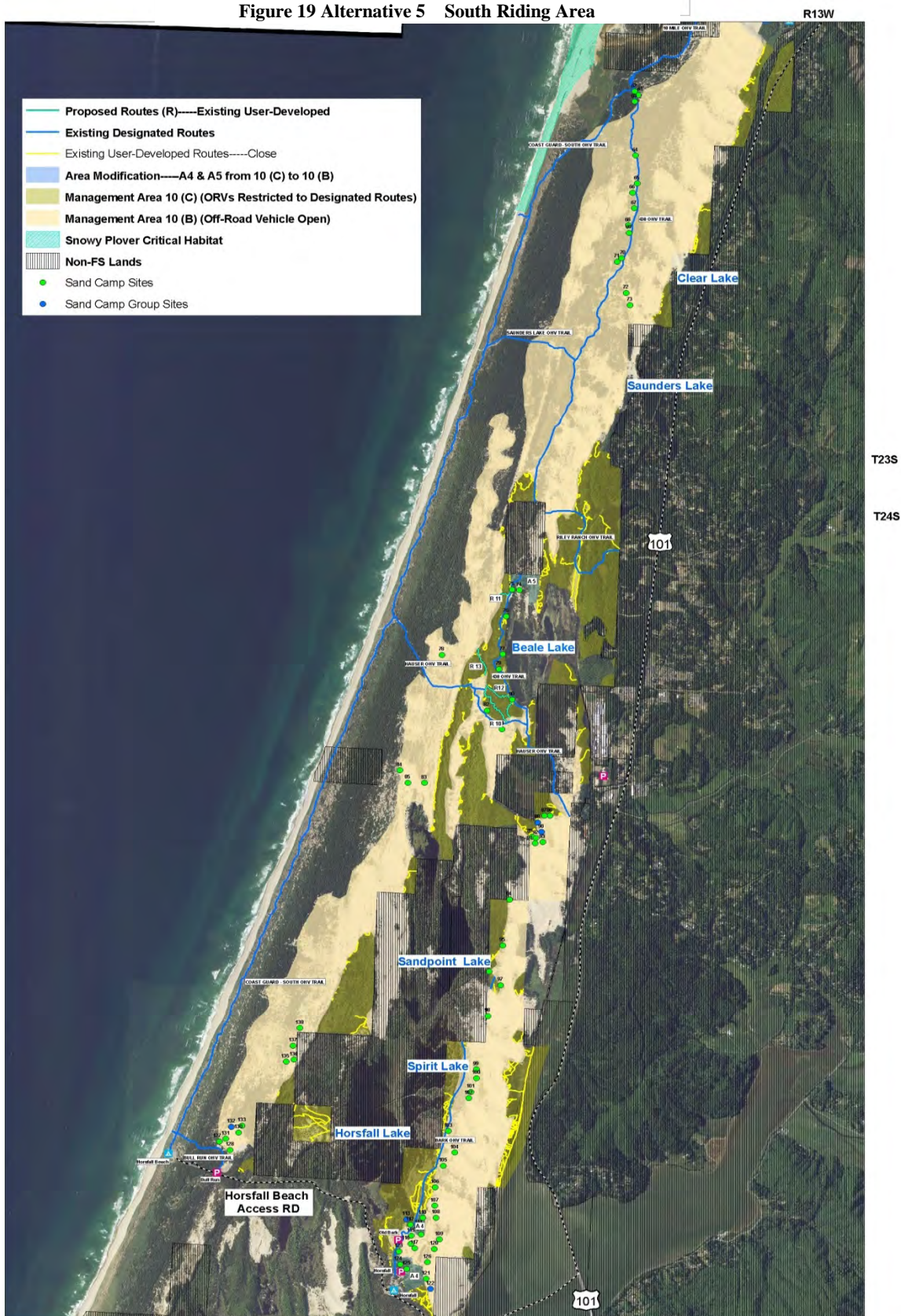


ODNRA Management Area 10 (C) Route and Area Designation
Figure 18 Alternative 5 Middle Riding Area



ODNRA Management Area 10 (C) Route and Area Designation

Figure 19 Alternative 5 South Riding Area



To avoid repetition, the following table contains all proposals for designated routes, preceded by **R**, and reallocations from MA 10 (C) to MA 10 (B), preceded by **A**. The table also includes the direct effects and rationale of each proposed route or area reallocation, and the alternative(s) in which each proposal is included.

Table 26 Proposed Routes and Area Rationale

Proposed Route(R) or Reallocated Area (A)	Miles or Acres	Rationale and Effects	Alternative
R 1 (north)	0.3 mi	Contributes to more comprehensive system by connecting South Jetty and Siltcoos open riding areas; disperses travel between riding areas; provides direct route for emergency access	2, 3, 4, Modified 4, 5
R 2 (north)	0.2 mi	Contributes to more comprehensive system by connecting open riding areas via an existing designated route; provides an alternative route to relieve congestions of the highly popular South Jetty Hill riding and staging area; provides added emergency access	2, 3, 4, Modified 4, 5
R 3 (north)	0.5 mi	Contributes to a more comprehensive system by connecting open riding areas; relieves congestion in the South Jetty Hill riding area	2, 3, 4, Modified 4, 5
R 5 (north)	0.3 mi	Contributes to a more comprehensive system by connecting Incinerator designated route to an open riding area	2, 3, 4, Modified 4, 5
R 6 (north)	0.4 mi	Contributes to a more comprehensive system by connecting Incinerator designated route to an open riding area; additional emergency vehicle access to the red buggy riding area	2, 3, 4, Modified 4, 5
R 8 (middle)	1.2 mi	Contributes to a more comprehensive system by providing access to the foredune so that riders may walk down to the beach; provides two entry points to relieve congestion; by paralleling the foredune, provides more foredune access for this popular activity.	2, 3
R 10 (south)	0.4 mi	Contributes to a more comprehensive system by connecting open riding areas via an existing designated route; relieve congestion on the Hauser designated route.	2, 3, 4, Modified 4, 5
R 11 (south)	0.1 mi	Contributes to a more comprehensive system by connecting a designated route to open riding area provide added emergency access from 430	2, 3, 4, Modified 4, 5

Proposed Route(R) or Reallocated Area (A)	Miles or Acres	Rationale and Effects	Alternative
		designated route to open riding areas	
R 12 (south)	0.4 mi	Contributes to a more comprehensive system by connecting open riding areas via an existing designated route; relieve congestion on the Hauser designated route.	5
R 13 (south)	0.2 mi	Contributes to a more comprehensive system by connecting open riding areas; relieves congestion on the Hauser designated route.	5
R 14 (south)	0.2 mi	Contributes to a more comprehensive system by connecting Horsfall Staging area to open sand	3
R 15 (south)	0.1 mi	Contributes to a more comprehensive system by connecting Horsfall Campground to open sand	3
R 16 (north)	0.1 mi	Contributes to a more comprehensive system by connecting Coast Guard designated route to the beach; provides beach access from Siltcoos Beach staging area during seasonal closure of Beach for plover nesting.	2, 3, 4, Modified 4, 5
A 1 (north)	33 acres	Provides trail riding experience while connecting open riding areas; provides access to designated sand camp number 14	2, 4, Modified 4, 5
A 2 (north)	156 acres	Provides trail riding experience on the foredune near the beach	2, 4, Modified 4, 5
A 3 (north)	6 acres	Provides access to designated sand camps; provides trail riding experience	2, 4, 5
Modified A3 (north)	28 acres	Provides access to designated sand camps; provides trail riding experience	Modified 4
A 4-South (south)	22 acres	Provides access from Horsfall Campground and Horsfall Staging to open sand	2, 4, Modified 4, 5
A 4-North (south)	7 acres	Provides access to designated sand camp numbers 7 and 8	5
A 5 (south)	15 acres	Contributes to an understandable system due to visual similarity to surrounding areas of MA 10 (B) and connectivity to a parcel owned by Coos County and managed as open riding	2, 4, Modified 4, 5

Proposed Route(R) or Reallocated Area (A)	Miles or Acres	Rationale and Effects	Alternative
A 6 (north)	15 acres	Provides trail riding experience in a heavily trailed area bordering an open riding area	4, Modified 4, 5
A 7 (north)	26 acres	Provides trail riding experience in a heavily trailed area	4, Modified 4
A 8 (north)	9 acres	Provides trail riding experience in a heavily trailed area bordering an open riding area	4, Modified 4
A 9 (north)	6 acres	Provides trail riding experience in a heavily trailed area bordering an open riding area	4, Modified 4
A 10 (north)	33 acres	Provides trail riding experience while connecting two open riding areas that are currently connected by one designated route	4, Modified 4
A 12 (north)	50 acres	Provides trail riding experience that includes longer loop trails and access to Bear Lake and Cleawox Lake	5
A 13 (north)	112 acres	Provides trail riding experience and connects two open riding areas currently connected by one designated route	5
A 14 (north)	416 acres	Provides trail riding experience	5
A 15 (middle)	2 acres	Provides trail riding in the area known as "Banshee Hill"	2, 4, Modified 4, 5
A 16 (middle)	132 acres	Provides trail riding experience; provides the opportunity to park and walk to the beach	4, 5
Modified A 16 (middle)	109 acres	Provides trail riding experience; provides the opportunity to park and walk to the beach will lessening impacts to non-motorized recreation on the beach	Modified 4
A 17 (north)	64 acres	Provides trail riding experience	Modified 4

Project Design Criteria

The Forest Service also developed the following project design criteria to be used as part of all of the action alternatives.

Recreation

Activities to physically close routes would range from installing carsonite closure signs to fencing and allowing closed trails to re-vegetate. The physical characteristics of closed trails vary and may require different closure measures. Signing and clarifying closure areas through mapping and education has and will continue to be effective. Other areas may need other

approaches. Natural and manmade barricades may be used to close narrow trails in dense vegetation and those trails would be allowed to re-vegetate naturally. Conversely, more open areas may need fencing and re-vegetation. In rare circumstances, re-contouring trails with equipment may be used to close trails.

User-developed routes in MA 10 (B) will not be part of the Forest trail system and will not be signed or maintained.

Closure of MA 10 (C) to cross country travel will be enforced by Forest Service Law Enforcement and Forest Protection Officer patrols.

Designated routes or reallocations to allow continued use of user-developed routes will not occur adjacent to residential or quiet recreation areas, in order to minimize noise OHV impacts to others.

Maps identifying designated routes and open riding areas will be available to the public. Examples may include the Siuslaw National Forest website, on-site postings at fee stations, and Motor Vehicle Use Maps (MVUM).

Designated routes will be signed to meet FS Travel and Access Standards.

Signs will be posted where appropriate to inform OHV users of the intent and use of designated routes.

All designated routes will be part of the Forest trail system and maintained to comply with the design criteria found in Forest Service Handbook 2309.18, Chapter 20 as funding allows. Designated routes will meet 23.23 Exhibit 01-Design Parameters for Trail Class 2.

Fisheries

Aquatic Organism Passage – Provide for passage of aquatic organisms at all locations where designated routes cross channelized stream courses including intermittent stream courses. Types of acceptable crossings include fords, countersunk culverts with natural streambed materials within, open-bottomed pipe arches, and bridges. Stream crossing structures will be able to span the average bank-full width of the channel.

Water Resources

Follow Siuslaw National Forest Plan standards and guides (FW-114 through FW-118) to meet water-quality standards outlined in the Clean Water Act for protecting Oregon waters, and apply practices as described in General Water Quality Best Management Practices, Pacific Northwest Region, November 1988. Design criteria, including these practices, are incorporated throughout the project, such as in project location, design, contract language, implementation, and monitoring. The State has agreed that compliance with these practices will ensure compliance with State Water Quality Standards (Forest Service Manual 1561.5, R-6 Supplement 1500-90-12).

Coordinate with Coos Bay-North Bend Water Board and private water right holders to protect POD (point of diversion) and POU (point of use) areas. Communication with these entities will be maintained through the course of this project and future projects to prevent adverse impacts to any well/waterline that is located in the project area.

If the total oil or oil products storage at a work site exceeds 1,320 gallons, or if a single container (e.g., fuel truck or trailer) exceeds a capacity of 660 gallons, the operator shall prepare and implement a Spill Prevention Control and Countermeasures Plan (SPCCP). The SPCCP will meet applicable EPA requirements (40 CFR 112), including certification by a registered professional engineer (SFP: FW-119, 120, 122). The plan describes measures to prevent or reduce impacts from potential spills (fuel, hydraulic fluid, etc.). The SPCCP shall contain a description of the hazardous materials that will be used, including inventory, storage, handling procedures, and a description of quick response containment supplies that will be available on the site (e.g., a silt fence, straw bales, and an oil-absorbing, floating boom whenever surface water is present).

Establish staging areas (used for construction equipment storage, vehicle storage, fueling, servicing, hazardous material storage, etc.) beyond the 100-year floodplain in a location and manner that will preclude erosion into or contamination of the stream, floodplain, and wetland. Equipment staging areas should be established on impervious surfaces at parking/OHV staging areas in the vicinity of the project when applicable.

Prior to route construction, flag critical riparian vegetation areas, wetlands, and other sensitive sites to prevent ground disturbance in these areas.

All equipment shall be steam-cleaned to remove all dirt and weeds before entering the project area (either initially or upon returning to the project area if the equipment was removed from the area) to prevent the spread of chemical contamination and noxious weeds.

All equipment used for in water work shall be cleaned and leaks repaired prior to entering the project area. Remove external oil and grease, along with dirt and mud prior to construction. Thereafter, inspect equipment daily for leaks or accumulations of grease, and fix any identified problems before entering streams or areas that drain directly to streams or wetlands.

Equipment used for in water or riparian work shall be fueled and serviced in an established staging area outside of riparian zone. When not in use, vehicles shall be stored in the staging area.

Implement appropriate erosion control measures (work site isolation, hay- or straw bales, and silt fences, etc.) to minimize downstream transport of sediment. Isolate the worksite on all perennial streams and on intermittent channels that have stream flow during implementation to minimize sediment inputs downstream of the action.

Obtain the required permitting prior to in-stream and/or wetland activities.

When possible, schedule construction/maintenance activities during dry periods or low water periods, generally from 1 July-15 October.

Employ barriers or other methods to discourage off-trail OHV use in protected riparian (stream vegetation), littoral zones (lake/pond vegetation) and stream crossings.

Place excess native trail materials in stable areas and away from stream channels.

Stabilize potential erosion areas caused by OHV use and control sedimentation, especially near lakes/ponds. Minimize sedimentation potential by implementing appropriate measures to meet Oregon DEQ turbidity standards.

Minimize the number and width of OHV access points through riparian (stream side) and littoral (lake side) areas.

Minimize soil and vegetation disturbance along stream banks (riparian zone) and lake/pond banks (littoral zone) vegetation.

Where possible, avoid wetlands, seeps and springs during trail/designated route location implementation or, when not possible, utilize construction techniques to minimize resource impacts.

Use resource protection methods in rezone areas to distinguish boundaries between management areas.

No treated lumber will be used in the vicinity of surface water or in areas of shallow ground water.

Drainage structures should be constructed during the dry season so they are fully operational prior to the rainy season.

Soil Resources

When a road or trail section is realigned or closed, the old route shall be concurrently decommissioned and properly blocked, preventing future use of the abandoned route. If this occurs on a trail/route that is located on more impervious soils, proper drainage structures for overland flow will be installed

Clearing vegetation for designated route construction/maintenance will be conducted during 1 June-15 September. Minimize total removal of existing vegetation by trimming to a height that allows users to proceed but does not kill/remove the vegetation unless removal is required for OHV route width standards.

A comprehensive erosion control plan shall be developed and would include measures such as “Minimize soil erosion by OHVs through resource protected areas”.

Minimize the movement of material off the route bed during construction of routes with heavy equipment.

Install appropriate erosion control measures in areas within at least 25 feet of stream crossings, wetlands, seeps and springs on designated OHV routes and trails.

In rezone areas, clearly mark the boundary between management areas to contain resource impact to the rezone area.

Upon project completion, remove project related waste.

Heritage

Changes to designated routes or other alterations to actions listed in the ROD will require consultation with the Forest Archaeologist in order to protect known and unknown cultural resources.

Areas to be changed from MA 10 (C) to MA 10 (B) will be delineated in a manner that protects known cultural resources.

Should OHV use uncover previously unidentified heritage resources, OHV use must be suspended in the vicinity of the find, in accordance with federal regulations (NHPA and 36 CFR 800). The Forest Archaeologist must be notified to evaluate the discovery and recommend a subsequent course of action.

Wildlife

Proposed designated route, R16, in the North Riding Area will require enhancement of an existing user-developed route to meet safety requirements for use by street legal vehicles. To meet safety requirements as well as discourage use by snowy plover, the beach side of R16 would be modified to approximately 50 feet in width tapering to approximately 16 feet on the east side of the foredune. Mechanical enhancement of this would be coordinated with a wildlife biologist and scheduled to occur when no snowy plovers are present.

Closures of user-developed trails that could have an effect on snowy plovers, including those south of Siltcoos Breach along the foredune, near the snowy plover intermittent use area in the North Riding Area and foredune trails south of Umpqua #3 Parking Lot in the Middle Riding Area will be given priority and be included in the first phase. Priority will also be given to maintenance and monitoring the effectiveness of these closures. The Forest will produce an annual monitoring report that documents the status of plover related trail closures. It is expected that the first phase of trail closures will be completed within 2 years of the project decision.

To avoid disturbance impacts to wintering western snowy plover, seasonally close the spur trail from the Coast Guard road west over the Siltcoos Breach with a physical barrier from September 16 through March 14 while providing an alternate access 100 yards to the north of Siltcoos breach.

Protect all bald eagle nest sites, including existing and newly discovered active and inactive sites using recommendations listed in the National Bald Eagle Management Guidelines, USFWS May 2007.

Botany

Control invasive plant species in close proximity to designated routes and within management area 10 (B) by the most effective means allowed. High priority species include gorse, Portuguese broom, Scot's broom. European beachgrass should be controlled when located in areas not previously known.

Monitor designated routes for the presence of invasive species on no less than a bi-annual schedule.

Employ barriers or other methods to discourage off-trail OHV use in areas of native vegetation susceptible to OHV impact.

Where possible, avoid wetlands, seeps and springs during trail/designated route location implementation or, when not possible, utilize construction techniques to minimize resource impacts and access.

Alternatives Considered but Eliminated from Detailed Study

Federal agencies are required by NEPA to rigorously explore and objectively evaluate all reasonable alternatives and to briefly discuss the reasons for eliminating any alternatives that

were not developed in detail (40 CFR 1502.14). Public comments received in response to the Proposed Action provided suggestions for alternative methods for achieving the purpose and need. Some of these alternatives may have been outside the scope of the project, duplicative of the alternatives considered in detail, or determined to be components that would cause unnecessary environmental harm. Therefore, other alternatives were considered, but dismissed from detailed consideration for reasons summarized below.

Designate all currently existing user-developed routes.

Designating all of the approximately 135 miles of existing user-developed routes would not meet the direction of the Dunes Plan nor of 36 CFR (Code of Federal Regulations) Part 212.55(b), which establishes an objective of minimizing motorized use impacts to the environment. The Dunes Plan specifies the goal for management of MA 10 (C) to “minimize impacts on vegetated areas while allowing controlled opportunities for riding and travel through the area on designated routes for access to the beach and other areas which are open for ORV use.” Many of the 135 miles of existing user-developed routes do not meet this goal because they do not connect open riding areas or lead to the beach.

Proposal should include Dune Restoration Activities.

This project is focused on designating routes and areas within MA 10 (C) of the ODNRA. Restoration has been conducted on a limited basis for specific species such as Snowy Plover. The Forest has initiated a more comprehensive approach to restoration with interested members of the public. For example, in 2013, the Forest initiated a 44 acre restoration project north of the Bull Run Staging area to restore open sand conditions. Anyone interested should contact the District Ranger of the Central Coast Ranger District-Oregon Dunes National Recreation Area. Although the need for restoration on the Dunes to address invasive species such as European beachgrass and Scots broom is a topic in which the Forest is extremely interested, it is outside the scope of this project.

Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Information in the following table is focused on activities and effects wherein different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives.

Table 27 Comparison of Alternatives by Issues, Objectives and Outcomes

<i>Issue, Objective, and Outcome</i>	<i>Existing Condition</i>	<i>Alt. 1</i>	<i>Alt. 2</i>	<i>Alt. 3</i>	<i>Alt. 4</i>	<i>Modified Alt. 4</i>	<i>Alt. 5</i>
<i>Maintain the OHV trail riding experience:</i>							
<i>Acres of user-developed routes retained for OHV trail riding via reallocations from MA 10 (C) to MA 10 (B)</i>	<i>N/A</i>	<i>0</i>	<i>234</i>	<i>0</i>	<i>455</i>	<i>518</i>	<i>966</i>
<i>Miles of user-developed routes retained for OHV trail riding</i>	<i>135</i>	<i>0</i>	<i>30</i>	<i>0</i>	<i>49</i>	<i>46</i>	<i>70</i>
<i>Establish a more comprehensive and complete designated route system:</i>							
<i>Miles of designated trail added</i>	<i>N/A</i>	<i>0</i>	<i>3.4</i>	<i>3.6</i>	<i>2.3</i>	<i>2.3</i>	<i>2.9</i>
<i>Re-establish OHV access to and from designated sand camps:</i>							
<i>Number of sand camps with no motorized access for campers</i>	<i>N/A</i>	<i>3</i>	<i>0</i>	<i>3</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>Number of sand camps with no access to open riding areas</i>	<i>N/A</i>	<i>4</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>Proposed actions that may impact watershed and aquatic ecosystem health:</i>							
<i>Aquatic Conservation Strategy (ACS) Consistency</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>Proposed actions that may impact native vegetation:</i>							
<i>Acres of native vegetation within reallocations from MA 10 (C) to MA 10 (B)</i>	<i>N/A</i>	<i>0</i>	<i>11</i>	<i>0</i>	<i>92</i>	<i>109</i>	<i>552</i>
<i>Risk of introducing or spreading invasive species via reallocations from MA 10 (C) to MA 10 (B)</i>	<i>N/A</i>	<i>Low</i>	<i>Moderate</i>	<i>Low</i>	<i>High</i>	<i>High</i>	<i>High</i>

<i>Issue, Objective, and Outcome</i>	<i>Existing Condition</i>	<i>Alt. 1</i>	<i>Alt. 2</i>	<i>Alt. 3</i>	<i>Alt. 4</i>	<i>Modified Alt. 4</i>	<i>Alt. 5</i>
<i>Threatened and Endangered Botany Species (TES)</i>		<i>No impact</i>	<i>No Impact</i>	<i>No Impact</i>	<i>No Impact</i>	<i>No Impact</i>	<i>No Impact</i>
<i>Potential impacts to Cultural Resources</i>	<i>Highest</i>	<i>Lowest</i>	<i>Low</i>	<i>Very Low</i>	<i>Moderate</i>	<i>Moderate</i>	<i>Moderate</i>

CHAPTER 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This Chapter summarizes the physical, biological, social, and economic environments of the project area and the effects of implementing each alternative on that environment. It also presents the scientific and analytical basis for the comparison of alternatives presented in the alternatives chapter.

Project Background

In 1972, Public Law 92-260 established the Oregon Dunes National Recreation Area. The 1979 Plan was developed with the collaboration of a Resource Advisory Council made up of interested citizens. The 1979 Plan states that, “The Oregon Dunes Advisory Council had their first meeting on July 15, 1972, the day of the Oregon Dunes National Recreation Area dedication. They have had periodic meetings since, keeping completely informed of the issues and concerns. They became deeply involved in the planning process and the development of the management plan. By hiking, riding and flying through and over the area, they became very familiar with the conditions in the area. This knowledge and involvement was reflected in their voting 13 to 0 to accept the proposed management plan.”

After unanimous approval from the Resource Advisory Council, the first Dunes Plan was released in 1979. Since that time, the intent of OHV management of the Dunes has been to permit OHVs in certain areas of open sand and restrict them in vegetated areas. The 1979 Plan designated areas open to OHVs, and mapped those places as “open with regulations.” The 1979 Plan elaborated that OHVs will generally be confined to areas of open sand and that travel corridors through vegetated areas will be designated by the Forest Service. The 1994 Dunes Plan, building upon the ground work laid out in the first Dunes Plan, delineated those vegetated areas as MA 10 (C), wherein OHVs are permitted on designated routes only.

The objective of MA 10 (C) areas, as described in the 1994 Dunes Plan, is to protect vegetated habitats. However, vegetated habitats in the Dunes are varied and have changed over time. Non-native vegetation, plantations of naturally occurring species, and native vegetation are all components of the vegetated habitats of MA 10 (C). For example, in the Middle Riding Area, the vegetated fingers are comprised of native upland forests that have remained relatively unchanged for hundreds of years. The vegetated areas of the deflation plain in the Middle and North Riding areas have evolved more recently and are largely the result of the foredune that has formed since the introduction of non-native European beachgrass. Plantations of shorepine were planted on previously unstabilized sand.

The intent of MA 10 (C) is not to protect non-native vegetation but to limit resource damage to vegetated habitats by restricting OHVs to designated route. The area known as Banshee Hill is an example of the resource damage that can occur from OHV use in the native upland forests in the Middle Riding Area. The initial route at Banshee Hill was narrow and challenging, requiring skills and equipment only a few people possessed. As use continued and equipment became more powerful, the trail widened, down cut, undercut native vegetation and became less steep with the sand being pushed downhill. Ecologically, this has undercut and killed additional native vegetation and provided opportunities for new non-native vegetation growth while

fragmenting the vegetated habitat. The recreation experience is no longer as challenging and riders have begun to develop new, more challenging trails adjacent to Banshee Hill. This cyclic pattern of continuously seeking challenging trails is not sustainable in the long term. Designation of routes and areas open to motorized vehicles will limit resource damage while maintaining the recreational value of trail riding.

Recreation

Background

The Dunes Plan describes general objectives for recreation management, as well as more site specific objectives for each Management Area. The amount and type of recreation that may occur on any given area is dependent on land capabilities and management emphasis for that particular management area. Overall, broad objectives for recreation management at the ODNRA are to encourage and facilitate public enjoyment and understanding of the coastal sand dune environment and to provide a variety of recreational opportunities that can enhance quality of life for visitors and area residents (USDA 1994).

The purpose of MA 10 (C) is to protect vegetated habitats while providing controlled opportunities for OHV touring and travel on designated routes. OHVs are restricted to a limited number of designated routes in wetlands and other vegetated areas. Routes are provided to minimize OHV impacts to vegetation, wetlands and wildlife while allowing access between open-sand riding areas. The goal of this Management Area is to minimize OHV impacts in vegetated areas while allowing controlled opportunities for riding and travel through the area on designated routes for access to the beach and other areas which are open for OHV use. For this analysis, vegetation refers to native vegetation.

Existing Condition

Virtually all of the 28,900 acres of the Oregon Dunes ODNRA are available for recreational use. Recreation is the primary management emphasis in Management Area 10 (C), as well as MAs 10 (A), 10 (B) and 10 (D). The primary recreational activities occurring on areas designated as MA 10 (C), the project area, are off-highway vehicle riding and sand camping.

The Siuslaw National Forest hosts the highest amount of off highway use of any of the 17 national forests in the Pacific Northwest Region (Oregon and Washington). The Forest has seen significant growth over the past decade and is an important west coast and even national destination location for this form of recreational activity. Most concentrated OHV use occurs in the ODNRA between Memorial Day and Labor Day, but visitation occurs throughout the year.

Forest Service, State, County and private campgrounds and day use areas serving the OHV community exist along or near the 29 sand access points into the three riding areas of the ODNRA.

In the ODNRA, there are approximately 34 miles of designated routes open to all classes of off-highway vehicles. In MA 10 (C), there are roughly 135 miles of user-developed routes. Although these routes were closed by the publication of the Siuslaw Motor Vehicle Use Map (MVUM) in 2009, these routes have not been enforced as closed and appear open to the public. Many of these routes have been used continually since the ODNRA was established in 1972. Many others have developed in the interim. Despite direction dating back to the original Dunes Plan (1979),

user-developed routes have never been effectively closed or enforced at the ODNRA. For many riders they are and have long been a permanent feature of the ODNRA.

In 2005, the Siuslaw National Forest implemented the OHV-Sand Camping Project Environmental Assessment designating sand camps in the ODNRA. Currently 134 sand camps are designated throughout all three riding areas, of which 34 are located in MA 10 (C). Sand Camps are primitive in nature and scattered throughout the three riding areas. Sites are marked by numbered posts. Standard camps accommodate up to 20 people and five vehicles, while up to 40 people with 10 vehicles are permitted in group sites. Campers are permitted to camp within a 150 foot radius from the post marking a sand camp.

For recreation planning purposes, possible mixes or combinations of activities, settings, and probable experience opportunities have been arranged along a spectrum, or continuum. This continuum is called the Recreation Opportunity Spectrum (ROS) and the ROS concept for planning and managing recreation opportunities is widely accepted and used by numerous federal, state and local outdoor recreation managing entities, including the U.S. Forest Service (ROS Users Guide, USDA 1986). Planning for recreation opportunities using the ROS is conducted as part of Land and Resource Management Planning. The ROS provides a framework for defining the types of outdoor recreation the public might desire, and identifies that portion of the spectrum that a given National Forest might be able to provide. ROS is divided into six classes: Primitive, Semi-Primitive Non-Motorized, Semi-Primitive Motorized, Roaded Natural, Rural, and Urban. Each class is defined in terms of its combination of activity, setting, and experience opportunities (ROS Users Guide, USDA 1986).

The ROS class for MA 10 (C) is semi-primitive motorized. (USDA 1994). The semi-primitive motorized recreation setting on the ODNRA is characterized by the following conditions (USDA 1994):

- Predominantly natural appearing environment
- Vegetated areas managed to permit OHV riding only on a limited number of designated routes
- Moderate to large size, generally greater than 2,500 acres
- Low concentration of users, but often evidence of others on trails and in riding areas
- Visitor capacity is low to moderate. (The Dunes Plan identifies a target average of 1 to 2 OHV riders per acre, assuming perfect distribution across all acres available for riding.)
- Minimum and subtle on-site controls and restrictions
- Motorized use off road is permitted

Both MA 10 (C) and MA 10 (B) are classified as Semi-Primitive Motorized class in the ROS. All alternatives maintain the general characteristics of the Semi-Primitive Motorized setting characterized in the Dunes Plan.

Other recreational uses occurring in this management area include recreational mushroom picking, sand camping in designated sites, fishing, guided OHV dune rides, hiking, visiting dunal lakes, picnicking, horseback riding and wildlife viewing. Most of these activities are minimal and do not occur in areas of concentrated motorized use. They occur more heavily and more frequently in non-OHV portions of the ODNRA. Because these uses are minor and the primary management focus for MA 10 (C) is off-highway vehicle use, these elements will not be tracked throughout the alternatives. To the extent they are compatible and people wish to engage

in them, all of these secondary uses of the area can and will continue under any of the alternatives being considered in this action.

Comparing Effects of Alternatives

The recreation analysis area for this project is the 4,455 acres designated as MA 10 (C) of the ODNRA. The purpose for the project is to complete a more comprehensive and understandable OHV route system and to reallocate areas from MA 10 (C) to MA 10 (B) that have been found to better meet the appearance, conditions and management objectives of MA 10 (B). Through external and internal scoping, the following issues related to recreation were identified as being directly related to the decision to be made and measurable among the alternatives. Those issues are:

- Maintenance of the OHV trail-riding experience
- Maintenance of motorized access to designated sand camps and motorized access from sand camps within MA 10 (C) to open riding areas in MA 10 (B)

Elements to be tracked

The addition of designated routes would create a more comprehensive and understandable designated OHV route system. A comprehensive route system would provide access to various areas of open riding and also provide alternative routes to access open sand. A comprehensive system would also provide connections that are lacking from designated routes to open sand, from developed facilities to open sand, from open sand to the beach, and from designated sand camps to open riding areas. Designated routes serve the purpose of connecting riding areas and providing access to the beach, but do not contribute to a trail riding experience. All action alternatives include the designation of user-developed routes. The mileage of those newly designated routes will be tracked through all alternatives.

The loss of OHV trail riding opportunities was frequently cited as a concern during the scoping process. In particular, a distinction was made between travel on designated routes and the equally valued recreation opportunity of trail riding in unmaintained, undeveloped areas. This opportunity has developed over time at the ODNRA as vegetation has spread, engulfing regularly-ridden routes in areas that were once open sand. Also, although the approximately 135 miles of user-developed routes currently identified in MA 10 (C) were never authorized/designated for use, going as far back as the original Oregon Dunes Plan (1979), closures of those routes were never enforced or identified on the ground. They appeared open to motorized use and were used by the public as an OHV trail-riding experience. As a result, the trail riding recreation experience at the ODNRA evolved over time as vegetation continued to spread and visitors were tacitly allowed to ride user-developed, non-designated routes.

As evidenced by several hundred scoping comments, the experience of traveling and touring these meandering trails is valued greatly by some riders at the Oregon Dunes. In response to comments identifying this recreational experience, the number of miles of user-developed routes retained for trail riding will be tracked throughout all alternatives to reflect impacts to this opportunity. Units of measure for this element for comparison of alternatives will be acres of reallocation from MA 10 (C) to MA 10 (B) and miles of user-developed routes within proposed reallocations that would remain available to fulfill the trail riding experience.

Maintenance of motorized access to designated sand camps and motorized access from sand camps within MA 10 (C) to open riding areas in MA 10 (B) will also be tracked throughout all five alternatives. This issue has two components. Some sand camps within MA 10 (C) are only accessible from open riding areas and existing designated routes via user-developed routes. The size of a designated sand camp is the 150 feet radius around the post marking the site (OHV-Sand Camping Project EA, 2004). Therefore, if a sand camp in MA 10 (C) is not within 150 feet of open sand (MA 10 (B)) or a designated route, there is no legal access to that camp site. The unit of measure for this issue component will be the number of sand camps for which access will be retained/restored via designated route access or proposed reallocations.

The other component of sand camping access is that some sand camps within MA 10 (C) are located along designated routes that end before reaching open riding areas. Therefore, campers utilize user-developed routes to access open riding areas. The unit of measure for this issue component will be the number of sand camps with retained/restored access to open sand.

Summary

The following measures will be tracked to compare the recreation effects of all five alternatives:

- Miles of newly proposed designated routes
- Acres of reallocations from MA 10 (C) to MA 10 (B)
- Miles of user-developed routes retained for OHV trail riding opportunities within reallocations from MA 10 (C) to MA 10 (B)
- Number of designated sand camps for which motorized access is retained/restored
- Number of sand camps with retained/restored motorized access to open riding areas

In general, reallocations would lessen the need for signing, fencing, barricading and patrolling closed areas while providing trail riding without the need for maintenance of formal trails to Forest Service standards. Specific rationale for proposed designation of user-developed routes and proposed reallocations from MA 10 (C) to MA 10 (B) can be found in Table 21- Proposed Designated Routes and Areas.

Table 28. Issue, Objective, and Outcome by Alternative

Issue, Objective, and Outcome	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Modified Alt. 4	Alt. 5
Miles of designated trail added	0	3.4	3.6	2.3	2.3	2.9
Acres of user-developed routes retained for OHV trail riding via reallocations from MA 10 (C) to MA 10 (B)	0	234	0	455	518	966
Miles of user-developed routes retained for OHV trail riding	0	30	0	49	46	70
Number of sand camps with no motorized access for campers	3	0	3	0	0	0
Number of sand camps with no access to open riding areas	4	0	0	0	0	0

Alternative 1 (No Action)-Recreation

Direct and Indirect Effects

More Understandable and Comprehensive Designated Route System:

With no addition of designated routes, this alternative would not contribute to the development and completion of a comprehensive and understandable designated route system. At least temporarily, there would be no access from the Horsfall Staging Area and the Horsfall Campground at the southern end of the ODNRA to open riding areas because the currently existing route to the sand has never been identified as a designated route. The Horsfall Staging Area contains 23 parking spots, and the Campground has 70 sites. This would render these developed recreation sites unusable for motorized recreationists seeking direct sand access, reducing the number of available OHV campsites by 68% and the number of OHV day use sites by 23% in the Horsfall Corridor. Motorized vehicles would have no designated access from Incinerator designated route in the north riding area to open sand.

Trail Riding Experience:

The currently existing trail riding experience on unauthorized, user-developed trails would be lost in this alternative. Alternative 1 does not reallocate any areas of MA 10 (C) to open riding as MA 10 (B). This alternative has the greatest impact to motorized trail riding opportunities in MA 10 (C) because approximately 135 miles of user-developed routes would be enforced as closed.

Sand Camp Access:

Under this alternative, there would be no motorized access into three existing sand camps: 7, 8, and 14 in the north riding area. Reduction in available sand camps would diminish the opportunity for sand camping and overall OHV camping capacity of the ODNRA. These sand camps are standard sites, with a maximum capacity of 20 people per site. The loss of these three camps would decrease sand camping capacity in the north riding area by nearly 10 %.

Furthermore, sand camps 7 and 8 are very popular sites. For example, in August of 2011, both sand camps were occupied every weekend. Although developed camping opportunities exist in Forest Service, State Park, County and private campgrounds, undeveloped sand camping opportunities are primarily provided by the Forest Service with only limited opportunities on Douglas County and Coos County managed lands within or adjacent to the ODRNA.

The following sand camps located along the Incinerator designated routes would have no access to open riding areas: 27, 28, 29, and 30. Sand camps are utilized almost exclusively by campers visiting to participate in OHV recreation. If these sand camps were utilized, campers would have to trailer any non-street legal OHVs to a staging area in order to access open riding areas.

Cumulative Effects

More Understandable and Comprehensive Designated Route System:

In both the short and long term some of the areas within motorized portion of the ODNRA would become and remain inaccessible to riders, campers and emergency responders. Use of the limited number of designated routes in areas to travel between riding areas would increase. Recent additions of private campgrounds particularly near the Hauser area have increased the number of riders using designated routes to access other open riding areas and to access the beach. Future development of the lands adjacent to the ODNRA would increase the number of riders utilizing designated routes, particularly in the south riding area.

Trail Riding Experience:

The incremental effect of this alternative, when added to other past, present and reasonably foreseeable future actions contributes to the trend of the loss of the recreational opportunity for travel by motor vehicle on undeveloped trails in a cross country setting. From 1972 when the ODNRA was established by Congress to the adoption of the first management plan in 1979, roughly 91% of the ODNRA was zoned as open to OHV use. Not all areas that were open to OHVs were actually accessible due to dense vegetation. The 1979 Plan zoned 47 % of the ODNRA as open to OHV use. In 1994, the current Dunes Plan was adopted, zoning 46 % of the ODRNA as open to OHV use to various degrees. This number includes MA 10 (B), where open riding is permitted, as well a Management Areas 10 (C), 10 (G) and 10 (L), where OHV use is permitted on designated routes only.

Although 46% of the Dunes that are open to motorized use to some degree would remain unchanged, the ability of riders to experience a cross country trail riding in vegetated areas would be greatly reduced. Under this alternative, all of the approximately 135 miles of user-developed routes that were never authorized, but regularly used over a long period of time would be enforced as closed.

Sand Camp Access:

The reduction in available sand camps would increase the demand for remaining sand camping sites in the north riding area and increase the utilization of existing sand camps. Displaced campers may move to nearby private, county and state campgrounds.

Alternative 2 (Proposed Action)-Recreation

Direct and Indirect Effects

More Understandable and Comprehensive Designated Route System:

The newly proposed designated routes are similar throughout alternatives 2, 3, 4, Modified 4 and 5. This alternative designates nine additional routes for a total of 3.4 miles. Routes connecting open riding areas in the north would relieve congestion near busy staging areas such as South Jetty and provide additional routes for travel between riding areas for both OHV riders and emergency vehicles. In the middle riding area, riders would have access to the non-motorized beach adjacent to the riding area. Proposed routes in the south riding area would provide additional access for riders and emergency vehicles to open riding from the 430 designated route and relieve congestion on the Hauser designated route leading to the beach. Direct effects of specific proposed designated routes are detailed on page 43-45 in Table 21.

Trail Riding Experience:

Six areas would be reallocated from MA 10 (C) to MA 10 (B) for a total of 234 acres thus allowing continued motorized use of about 30 miles of user-developed routes for OHV trail riding opportunities. The areas proposed for reallocation would provide a diverse trail riding experience including portions of the heavily trailed foredune in the north and the popular area known as Banshee Hill in the middle riding area. Reallocation would also connect open riding areas in the north, connect the Horsfall Staging area and Horsfall Campground to open sand, and connect a large open riding area near Beale Lake to Coos County land managed as open riding. Direct effects of specific proposed reallocations are detailed on page 43-45 in Table 21.

Under this alternative, approximately 102 miles of user-developed routes that were never authorized, but are regularly used, would be enforced as closed.

Sand Camp Access:

Sand camps 27, 28, 29 and 30 along the Incinerator designated route would have access to open riding areas of MA 10 (B). Additionally, sand camps 7, 8, and 14 would be accessible to motorized vehicles.

Cumulative Effects

More Understandable and Comprehensive Designated Route System:

Coos County Parks and Recreation opened the Riley Ranch OHV Campground with sand access in 2012, contributing more traffic to the area. Additional designated routes in the area would alleviate some of this congestion. In both the short and long term, the addition of designated routes in the Hauser area will improve and ease of travel to the beach and between open riding areas. This area becomes congested during busy periods, such as holiday weekends.

Recent additions of private campgrounds particularly near the Hauser area have increased the number of riders using designated routes to access other open riding areas and to access the beach. Future development of the lands adjacent to the ODNRA would increase the number of riders utilizing designated routes, particularly in the south riding area.

Trail Riding Experience:

The incremental effect of this alternative, when added to other past, present and reasonably foreseeable future actions contributes to the trend of the loss of the recreational opportunity for travel by motor vehicle on undeveloped trails in a cross country setting. From 1972 when the ODNRA was established by Congress to the adoption of the first management plan in 1979, roughly 91% of the ODNRA was zoned as open to OHV use. Not all areas that were open to OHVs were actually accessible due to dense vegetation. The 1979 Plan zoned 47 % of the ODNRA as open to OHV use. In 1994, the current Dunes Plan was adopted, zoning 46 % of the ODRNA as open to OHV use to various degrees. This number includes MA 10 (B), where open riding is permitted, as well a Management Areas 10 (C), 10 (G) and 10 (L), where OHV use is permitted on designated routes only.

Although the designation of routes and the reallocation of acres of MA 10 (C) to MA 10 (B) would not alter the 46% of the Dunes that are open to motorized use to some degree, it does impact the ability of riders to experience a cross country trail riding experience. Under this alternative, approximately 102 miles out of 135 miles of user-developed routes that were never authorized, but regularly used over a long period of time would be enforced as closed, therefore decreasing the opportunity for trail riding. However, with an increase of 234 acres managed as open riding in MA 10 (B), this alternative would increase the acres managed as open riding by approximately 4%.

Sand Camp Access:

There would be no cumulative effects to sand camping because there are no direct or indirect effects to sand camping access.

Alternative 3-Recreation

Direct and Indirect Effects

More Understandable and Comprehensive Designated Route System:

The newly proposed designated routes are similar throughout alternatives 2, 3, 4, Modified 4 and 5. This alternative designates eleven additional routes for a total of 3.6 miles. Routes connecting open riding areas in the north would relieve congestion near busy staging areas such as South Jetty and provide additional routes for travel between riding areas for both OHV riders and emergency vehicles. In the middle riding area, riders would have access to the non-motorized beach adjacent to the riding area. Proposed routes in the south riding area would provide additional access for riders and emergency vehicles to open riding from the 430 designated route and relieve congestion on the Hauser designated route leading to the beach. Horsfall Campground and Horsfall Staging Area would have access to open riding areas. Direct effects of specific proposed designated routes are detailed on page 43-45 in Table 21.

Trail Riding Experience:

No reallocations of lands from MA 10 (C) to 10 (B) are proposed. The currently existing trail riding experience on unauthorized, user-developed trails would be lost in this alternative. This alternative has the second greatest impact to motorized trail riding opportunities in MA 10 (C) because approximately 131 miles out of user-developed routes would be enforced as closed.

Sand Camp Access:

Under this alternative, there would be no access to sand camps: 7, 8, and 14. Reduction in available sand camps would diminish the opportunity for sand camping and increase demand because of fewer sites. These sand camps have a capacity of 20 people per site. The loss of those camps would decrease sand camping capacity in the north riding area by nearly 10 %. Furthermore, sand camps 7 and 8 are very popular sites. For example, in August of 2011, both of those sand camps were occupied every weekend. Although developed camping opportunities exist in Forest Service, State Park, County and private campgrounds, sand camping opportunities are primarily provided by the Forest Service with limited opportunities on Douglas County and Coos County managed lands within or adjacent to the ODRNA.

Sand camps 27, 28, 29 and 30 along the Incinerator designated route would have access to open riding areas of MA 10 (B).

Cumulative Effects

More Understandable and Comprehensive Designated Route System:

Coos County Parks and Recreation opened the Riley Ranch OHV Campground with sand access in 2012, contributing more traffic to the area. Additional designated routes in the area would alleviate some of this congestion. In both the short and long term, the addition of designated routes in the Hauser area will improve and ease of travel to the beach and between open riding areas. This area becomes congested during busy periods, such as holiday weekends.

Recent additions of private campgrounds particularly near the Hauser area have increased the number of riders using designated routes to access other open riding areas and to access the beach. Future development of the lands adjacent to the ODNRA would increase the number of riders utilizing designated routes, particularly in the south riding area.

Trail Riding Experience:

The incremental effect of this alternative, when added to other past, present and reasonably foreseeable future actions contributes to the trend of the loss of the recreational opportunity for travel by motor vehicle on undeveloped trails in a cross country setting. From 1972 when the ODNRA was established by Congress to the adoption of the first management plan in 1979, roughly 91% of the ODNRA was zoned as open to OHV use. Not all areas that were open to OHVs were actually accessible due to dense vegetation. The 1979 Plan zoned 47 % of the ODNRA as open to OHV use. In 1994, the current Dunes Plan was adopted, zoning 46 % of the ODRNA as open to OHV use to various degrees. This number includes MA 10 (B), where open riding is permitted, as well a Management Areas 10 (C), 10 (G) and 10 (L), where OHV use is permitted on designated routes only.

Although 46% of the Dunes that are open to motorized use to some degree would remain unchanged, the ability of riders to experience a cross country trail riding in vegetated areas would be greatly reduced. Under this alternative, approximately 131 miles out of 135 miles of user-developed routes that were never authorized, but regularly used over a long period of time would be enforced as closed.

Sand Camp Access:

The reduction in available sand camps would increase the demand for remaining sand camping sites in the north riding area and increase the utilization of existing sand camps. Displaced campers may move to nearby private, county and state campgrounds.

Alternative 4 -Recreation

Direct and Indirect Effects

Understandable and Comprehensive Designated Route System:

The newly proposed designated routes are similar throughout alternatives 2, 3, 4, and Modified 4 and 5. This alternative designates eight additional routes for a total of 2.3 miles. Routes connecting open riding areas in the north would relieve congestion near busy staging areas such as South Jetty and provide additional routes for travel between riding areas for both OHV riders and emergency vehicles. In the middle riding area, riders would have access to the non-motorized beach adjacent to the riding area. Proposed routes in the south riding area would provide additional access for riders and emergency vehicles to open riding from the 430 designated route and relieve congestion on the Hauser designated route leading to the beach. Direct effects of specific proposed designated routes are detailed on page 43-45 in Table 21

Trail Riding Experience:

Twelve areas would be reallocated from 10 (C) to 10 (B) for a total of 455 acres allowing continued motorized use of about 49 miles for OHV trail riding opportunities. This alternative proposes the third highest total of reallocation acres and second highest user-developed route mileage with continued access. The areas proposed for reallocation would provide a diverse trail riding experience including portions of the heavily trailed foredune in the north and the popular area known as Banshee Hill in the middle riding area. The heavily trailed area east of the foredune at Umpqua would be reallocated to provide low elevation, flat trail riding near the beach. In addition, small heavily trailed edges bordering open riding areas in the north would be reallocated to open riding. Reallocations would also connect open riding areas in the north, connect the Horsfall Staging area and Horsfall Campground to open sand, and connect a large open riding area near Beale Lake to Coos County land managed as open riding. Direct effects of specific proposed reallocations are detailed on page 43-45 in Table 21.

Under this alternative, approximately 86 miles of use-developed routes that were never authorized, but are regularly used would be enforced as closed.

Sand Camp Access:

Sand camps 27, 28, 29 and 30 along the Incinerator designated route would have access to open riding areas of MA 10 (B). Additionally, sand camps 7, 8, and 14 would be accessible to motorized vehicles.

Cumulative Effects

Understandable and Comprehensive Designated Route System:

Coos County Parks and Recreation opened the Riley Ranch OHV Campground with sand access in 2012, contributing more traffic to the area. Additional designated routes in the area would

alleviate some of this congestion. In both the short and long term, the addition of designated routes in the Hauser area will improve and ease of travel to the beach and between open riding areas. This area becomes congested during busy periods, such as holiday weekends.

Recent additions of private campgrounds particularly near the Hauser area have increased the number of riders using designated routes to access other open riding areas and to access the beach. Future development of the lands adjacent to the ODNRA would increase the number of riders utilizing designated routes, particularly in the south riding area.

Trail Riding Experience:

The incremental effect of this alternative, when added to other past, present and reasonably foreseeable future actions contributes to the trend of the loss of the recreational opportunity for travel by motor vehicle on undeveloped trails in a cross country setting. From 1972 when the ODNRA was established by Congress to the adoption of the first management plan in 1979, roughly 91% of the ODNRA was zoned as open to OHV use. Not all areas that were open to OHVs were actually accessible due to dense vegetation. The 1979 Plan zoned 47 % of the ODNRA as open to OHV use. In 1994, the current Dunes Plan was adopted, zoning 46 % of the ODRNA as open to OHV use to various degrees. This number includes MA 10 (B), where open riding is permitted, as well a Management Areas 10 (C), 10 (G) and 10 (L), where OHV use is permitted on designated routes only.

Although the designation of routes and the reallocation of acres of MA 10 (C) to MA 10 (B) would not alter the 46% of the Dunes that are open to motorized use, it does impact the ability of riders to experience a cross country trail riding experience. Under this alternative, approximately 86 miles out of 135 miles of user-developed routes that were never authorized, but regularly used over a long period of time would be enforced as closed, therefore decreasing the opportunity for trail riding. However, with an increase of 455 acres managed as open riding in MA 10 (B), this alternative would increase the acres managed as open riding by nearly 8%.

Sand Camp Access:

There would be no cumulative effects to sand camping.

Modified Alternative 4 (Preferred Alternative)-Recreation

Direct and Indirect Effects

Understandable and Comprehensive Designated Route System:

The newly proposed designated routes are similar throughout alternatives 2, 3, 4, Modified 4 and 5. This alternative designates eight additional routes for a total of 2.3 miles. Routes connecting open riding areas in the north would relieve congestion near busy staging areas such as South Jetty and provide additional routes for travel between riding areas for both OHV riders and emergency vehicles. In the middle riding area, riders would have access to the non-motorized beach adjacent to the riding area. Proposed routes in the south riding area would provide additional access for riders and emergency vehicles to open riding from the 430 designated route and relieve congestion on the Hauser designated route leading to the beach. Direct effects of specific proposed designated routes are detailed on page 43-45 in Table 21

Trail Riding Experience:

Thirteen areas would be reallocated from 10 (C) to 10 (B) for a total of 518 acres allowing continued motorized use of about 46 miles for OHV trail riding opportunities. This alternative proposes the second highest total of reallocation acres and user-developed route mileage with continued access. The areas proposed for reallocation would provide a diverse trail riding experience including portions of the heavily trailed foredune in the north and the popular area known as Banshee Hill in the middle riding area. This alternative differs from Alternative 4 in two reallocation areas changes. It would reduce the acres reallocated to open riding in the heavily trailed area east of the foredune at Umpqua (Modified A16) by shifting the western boundary of the reallocation from the top of the foredune to below the foredune in order to reduce user conflicts between riders and users of the adjacent non-motorized beach. This reallocation would still provide low elevation, flat trail riding near the beach. The other reallocation change between this alternative and Alternative 4 is an increase to the reallocation A3 in the north riding area. Modified A3 would incorporate an area popular for family riding that includes vegetation and open sand near sand camps 1, 2 and 3. Modified Alternative 4 adds a reallocation area, A17, in the North Riding Area. This new reallocation incorporates portions of A13, a reallocation that was in Alternative 5 only. In addition, small heavily trailed edges bordering open riding areas in the north would be reallocated to open riding. Reallocations would also connect open riding areas in the north, connect the Horsfall Staging area and Horsfall Campground to open sand, and connect a large open riding area near Beale Lake to Coos County land managed as open riding. Direct effects of specific proposed reallocations are detailed on page 43-45 in Table 21.

Under this alternative, approximately 89 miles of use-developed routes that were never authorized, but are regularly used would be enforced as closed.

Sand Camp Access:

Sand camps 27, 28, 29 and 30 along the Incinerator designated route would have access to open riding areas of MA 10 (B). Additionally, sand camps 7, 8, and 14 would be accessible to motorized vehicles.

Cumulative Effects

Understandable and Comprehensive Designated Route System:

Coos County Parks and Recreation opened the Riley Ranch OHV Campground with sand access in 2012, contributing more traffic to the area. Additional designated routes in the area would alleviate some of this congestion. In both the short and long term, the addition of designated routes in the Hauser area will improve and ease of travel to the beach and between open riding areas. This area becomes congested during busy periods, such as holiday weekends.

Recent additions of private campgrounds particularly near the Hauser area have increased the number of riders using designated routes to access other open riding areas and to access the beach. Future development of the lands adjacent to the ODNRA would increase the number of riders utilizing designated routes, particularly in the south riding area.

Trail Riding Experience:

The incremental effect of this alternative, when added to other past, present and reasonably foreseeable future actions contributes to the trend of the loss of the recreational opportunity for travel by motor vehicle on undeveloped trails in a cross country setting. From 1972 when the

ODNRA was established by Congress to the adoption of the first management plan in 1979, roughly 91% of the ODNRA was zoned as open to OHV use. Not all areas that were open to OHVs were actually accessible due to dense vegetation. The 1979 Plan zoned 47 % of the ODNRA as open to OHV use. In 1994, the current Dunes Plan was adopted, zoning 46 % of the ODRNA as open to OHV use to various degrees. This number includes MA 10 (B), where open riding is permitted, as well a Management Areas 10 (C), 10 (G) and 10 (L), where OHV use is permitted on designated routes only.

Although the designation of routes and the reallocation of acres of MA 10 (C) to MA 10 (B) would not alter the 46% of the Dunes that are open to motorized use, it does impact the ability of riders to experience a cross country trail riding experience. Under this alternative, approximately 89 miles out of 135 miles of user-developed routes that were never authorized, but regularly used over a long period of time would be enforced as closed, therefore decreasing the opportunity for trail riding. However, with an increase of 518 acres managed as open riding in MA 10 (B), this alternative would increase the acres managed as open riding by nearly 9%.

Sand Camp Access:

There would be no cumulative effects to sand camping.

Alternative 5-Recreation

Direct and Indirect Effects

Understandable and Comprehensive Designated Route System:

The newly proposed designated routes are similar throughout alternatives 2, 3, 4, Modified 4 and 5. This alternative designates ten additional routes for a total of 2.7 miles. Routes connecting open riding areas in the north would relieve congestion near busy staging areas such as South Jetty and provide additional routes for travel between riding areas for both OHV riders and emergency vehicles. In the middle riding area, riders would have access to the non-motorized beach adjacent to the riding area. Alternative 5 proposes the greatest number of routes in the south riding area to provide additional access to relieve congestion on the Hauser designated route leading to the beach, as well as additional access for riders and emergency vehicles to open riding from the 430 designated route to open riding. Direct effects of specific proposed designated routes are detailed on page 43-45 in Table 21

Trail Riding Experience:

Twelve areas would be reallocated from 10 (C) to 10 (B) for a total of 966 acres allowing continued motorized use of about 70 miles for OHV trail riding opportunities. This alternative proposes the highest total of reallocation acres and user-developed route mileage with continued access. The areas proposed for reallocation would provide a diverse trail riding experience including portions of the heavily trailed foredune in the north and the popular area known as Banshee Hill in the middle riding area. The heavily trailed area east of the foredune at Umpqua would be reallocated to provide low elevation, flat trail riding near the beach. Larger areas would be reallocated in the north riding area that include heavily trailed edges bordering open riding areas, the area between Hunter's designated route and the open sand in the Siltcoos area, and connections between riding areas with access to Bear Lake and Cleawox Lake. Reallocation would also connect the Horsfall Staging area and Horsfall Campground to open sand, and

connect a large open riding area near Beale Lake to Coos County land managed as open riding. Direct effects of specific proposed reallocations are detailed on page 43-45 in Table 21.

Under this alternative, approximately 62 miles of user-developed routes that were never authorized, but are regularly used would be enforced as closed.

Sand Camp Access:

Sand camps 27, 28, 29 and 30 along the Incinerator designated route would have access to open riding areas of MA 10 (B). Additionally, sand camps 7, 8, and 14 would be accessible to motorized vehicles.

Cumulative Effects

Understandable and Comprehensive Designated Route System:

Coos County Parks and Recreation opened the Riley Ranch OHV Campground with sand access in 2012, contributing more traffic to the area. Additional designated routes in the area would alleviate some of this congestion. In both the short and long term, the addition of designated routes in the Hauser area will improve and ease of travel to the beach and between open riding areas. This area becomes congested during busy periods, such as holiday weekends.

Recent additions of private campgrounds particularly near the Hauser area have increased the number of riders using designated routes to access other open riding areas and to access the beach. Future development of the lands adjacent to the ODNRA would increase the number of riders utilizing designated routes, particularly in the south riding area.

Trail Riding Experience:

The incremental effect of this alternative, when added to other past, present and reasonably foreseeable future actions contributes to the trend of the loss of the recreational opportunity for travel by motor vehicle on undeveloped trails in a cross country setting. From 1972 when the ODNRA was established by Congress to the adoption of the first management plan in 1979, roughly 91% of the ODNRA was zoned as open to OHV use. Not all areas that were open to OHVs were actually accessible due to dense vegetation. The 1979 Plan zoned 47 % of the ODNRA as open to OHV use. In 1994, the current Dunes Plan was adopted, zoning 46 % of the ODRNA as open to OHV use to various degrees. This number includes MA 10 (B), where open riding is permitted, as well a Management Areas 10 (C), 10 (G) and 10 (L), where OHV use is permitted on designated routes only.

Although the designation of routes and the reallocation of acres of MA 10 (C) to MA 10 (B) would not alter the 46% of the Dunes that are open to motorized use, it does impact the ability of riders to experience a cross country trail riding experience. Under this alternative, approximately 62 miles out of 135 miles of user-developed routes that were never authorized, but regularly used over a long period of time would be enforced as closed, therefore decreasing the opportunity for trail riding. However, with an increase of 455 acres managed as open riding in MA 10 (B), this alternative would increase the acres managed as open riding by approximately 16%.

In both the short and long term, the reallocation of **A 12** in the northern riding area would impact both recreational and commercial mushroom gathering. Matsutake mushroom habitat in these pine plantations could lead to increased conflicts between OHV use and mushroom pickers in one of the most productive picking areas in the ODNRA.

Sand Camp Access:

There would be no cumulative effects to sand camping.

Visual Resources

The existing landscape is comprised of areas of open sand, contiguous vegetation and vegetation interrupted by trails. The Dunes Plan establishes visual quality standards, called Visual Quality Objectives (VQOs) for all ODNRA lands. Projects and management activities are then planned to meet those objectives. For most areas of the ODNRA, the VQO corresponds with their assigned Recreation Opportunity Spectrum (ROS) classification. Lands that have been assigned the Semi-Primitive Motorized ROS class are managed for Retention.

Retention: To the average forest visitor, activities are not evident from the viewing location; however, a variety of roads, viewing platforms, and parking areas may be present. Upon completion of the activity, the viewed area will only appear slightly less altered. Vegetation and landforms are used to screen facilities and unwanted views. A variety of vegetation manipulation techniques are used to maintain and increase visual variety. (Dunes Plan III-8)

All alternatives would reduce the appearance of undesignated routes by enforcing them as closed and either blocking them or allowing them to revert naturally. As a result, undesignated routes would eventually become vegetated and blend in with surrounding vegetation, making them appear more natural to the casual viewer. The Dunes Plan cites the advancement of beach grass as a reduction of visual variety. While all alternatives meet the Retention VQO, beach grass advancement and the potential for beach grass growing on closed user-developed routes could reduce visual variety.

Alternative 1-Visual Resources

The 135 miles of user-developed trails that would be enforced as closed would re-vegetate once OHV use is discontinued. Cumulatively, by restricting OHV use on these user-created trails the amount of vegetation may increase up to about 200 acres, potentially reducing visual variety in about five percent of Management Area 10 (C).

Alternative 2 (Proposed Action)-Visual Resources

The 102 miles of user-developed trails that would be enforced as closed would re-vegetate once OHV use is discontinued. Cumulatively, by restricting OHV use on these user-created trails the amount of vegetation may increase up to about 150 acres potentially reducing visual variety in about 3 percent of Management Area 10 (C).

Alternative 3-Visual Resources

The 131 miles of user-developed trails that would be enforced as closed would re-vegetate once OHV use is discontinued. Cumulatively, by restricting OHV use on these user-created trails the amount of vegetation may increase up to about 200 acres, potentially reducing visual variety in about 5 percent of Management Area 10 (C).

Alternative 4-Visual Resources

The 86 miles of user-developed trails that would be enforced as closed would re-vegetate once OHV use is discontinued. Cumulatively, by restricting OHV use on these user-created trails the

amount of vegetation may increase up to about 125 acres, potentially reducing visual variety in about 3 percent of Management Area 10 (C).

Modified Alternative 4 (Preferred Alternative) -Visual Resources

The 89 miles of user-developed trails that would be enforced as closed would re-vegetate once OHV use is discontinued. Cumulatively, by restricting OHV use on these user-created trails the amount of vegetation may increase up to about 125 acres, potentially reducing visual variety in about 3 percent of Management Area 10 (C).

Alternative 5-Visual Resources

The 62 miles of user-developed trails that would be enforced as closed would re-vegetate once OHV use is discontinued. Cumulatively, by restricting OHV use on these user-created trails the amount of vegetation may increase up to about 95 acres, potentially reducing visual variety in about 2 percent of Management Area 10 (C).

Law Enforcement

Existing condition

Engineering, education and enforcement have been the keys to compliance on the ODNRA. Forest Service officials have been limited in enforcing off road vehicle closures in MA 10 (C). A prohibition, such as a closure of user-developed routes, must be reasonably brought to the attention of the public. Methods by which the public are educated regarding prohibitions include signage, media, barricades, fliers and maps. Currently, the public are not reasonably aware that travel through MA 10 (C) is permitted on designated routes only.

Every law enforcement contact is unique and highly situational. As a result, there is no specific prescription as to the course of action that will be followed at the time of a violation. Officers continue to have broad discretion in how they respond to specific situations. Furthermore, enforcement does not necessarily mean issuing a citation. Warnings, incident reports and educational contacts are all tools used to obtain compliance.

The priorities for Forest Service law enforcement are as follows. The first priority is the protection of employees and the public. The second priority is the protection of facilities. The third priority is the protection of resources.

Alternative 1 - No Action-Law Enforcement

This alternative would be the most difficult to enforce due to the number of officers needed to cover the extensive mileage and acreages enforced as closed. Historically, our staffing has consisted of 6 commissioned Law Enforcement Officers, and approximately 10 Forest Protection Officers who routinely patrol at the ODNRA. Under this alternative, approximately 135 miles of existing user-developed routes within MA 10 (C) would be closed. All user-developed routes currently being utilized by motorized vehicles would have to be signed in order to make the closures reasonably brought to the attention of the public. In some cases, fencing and barricades may be necessary before effective enforcement could occur. An increase of 2 to 4 commissioned Law Enforcement Officers, and 7 to 10 Forest Protection Officers could be anticipated.

Alternative 2 (Proposed Action) -Law Enforcement

This alternative would require enforcing fewer miles and acres of closures than alternative one. Approximately 102 miles of existing user-developed routes within MA 10 (C) would be enforced as closed. All user-developed routes currently being utilized by motorized vehicles, but not designated under this action would have to be signed in order to make the closures reasonably brought to the attention of the public. In some cases, fencing and barricades may be necessary before effective enforcement could occur. The popular riding area known as Banshee Hill would remain open to motorized use. An increase of 1 to 2 commissioned Law Enforcement Officers, and 3 to 5 Forest Protection Officers could be anticipated.

Alternative 3-Law Enforcement

Alternative three is similar to alternative one, enforcing the second most amount of user-developed routes as closed. Approximately 131 miles of unauthorized user developed routes currently being utilized by motorized vehicles would have to be signed in order to make the closures reasonably brought to the attention of the public. In some cases, fencing and barricades may be necessary before effective enforcement could occur. An increase of 2 to 4 commissioned Law Enforcement Officers, and 7 to 10 Forest Protection Officers could be anticipated.

Alternative 4-Law Enforcement

This alternative would require enforcing fewer miles and acres of closures than alternative one, two or three. Approximately 86 miles of existing user-developed routes within MA 10 (C) would be enforced as closed. All user-developed routes currently being utilized by motorized vehicles, but not designated under this action would have to be signed in order to make the closures reasonably brought to the attention of the public. In some cases, fencing and barricades may be necessary before effective enforcement could occur. The popular riding area known as Banshee Hill would remain open to motorized use. An increase of approximately 1 commissioned Law Enforcement Officer, and 1 to 3 additional Forest Protection Officers could be anticipated.

Modified Alternative 4 (Preferred Alternative) -Law Enforcement

This alternative would require enforcing fewer miles and acres of closures than alternative one, two or three. It would require enforcing about the same number of acres as Alternative four with approximately four more miles. Approximately 89 miles of existing user-developed routes within MA 10 (C) would be enforced as closed. All user-developed routes currently being utilized by motorized vehicles, but not designated under this action would have to be signed in order to make the closures reasonably brought to the attention of the public. In some cases, fencing and barricades may be necessary before effective enforcement could occur. The popular riding area known as Banshee Hill would remain open to motorized use. An increase of approximately 1 commissioned Law Enforcement Officer, and 1 to 3 additional Forest Protection Officers could be anticipated.

Alternative Five -Law Enforcement

This alternative would require enforcing the fewest miles and acres of closures. Approximately 62 miles of existing use-developed routes within MA 10 (C) would be enforced as closed. All user-developed routes currently being utilized by motorized vehicles, but not designated under

this action would have to be signed in order to make the closures reasonably brought to the attention of the public. In some cases, fencing and barricades may be necessary before effective enforcement could occur. The popular riding area known as Banshee Hill would remain open to motorized use. An increase of approximately 1 commissioned Law Enforcement Officer, and 1 to 3 additional Forest Protection Officers could be anticipated.

Botanical Resources (Forest Botanist, USFS, 2012a)

For further details and discussion of botany, please see the specialist report pertaining to these topics (USFS, 2012a).

Background

The Dunes Plan describes general objectives for managing vegetation, as well as more site specific objectives for each Management Area. In Management Area 10 (B) Off-Road Vehicle Open, managing vegetation may be subordinate to providing recreational experiences except where special habitats may be protected by placing signs and barriers (USDA 1994).

Management Area 10 (C) seeks to protect vegetated habitats while providing controlled opportunities for OHV touring and travel on designated routes. OHVs are restricted to a limited number of designated routes in wetlands and other vegetated areas. Routes are provided to minimize OHV impacts to vegetation, wetlands and wildlife while allowing access between open-sand riding areas. The goal is to minimize OHV impacts in vegetated areas while allowing controlled opportunities for riding and travel through the area on designated routes for access to the beach and other areas which are open for OHV use. For this analysis, a distinction is made between native and non-native vegetation.

Affected Environment

Prior to the 1930's, the vegetation of the central Oregon coastal dunesheet was dramatically different from the present (Christy et al. 1998, Pickart and Sawyer 1998, Wiedemann et al. 1999). Large areas were dominated by a sparse cover of native grasses, forbs, and shrubs that formed distinct dune vegetation communities. Where sand was most unstable, plants tolerant of being buried formed a vegetative community represented by seashore bluegrass (*Poa macrantha*), large-headed sedge (*Carex macrocephala*), seashore lupine (*Lupinus littoralis*), gray beach pea (*Lathyrus littoralis*), American dune grass (*Leymus mollis*), and yellow sandverbena (*Abronia latifolia*). Areas of more stable sand supported a grass community dominated by sand fescue (*Festuca ammobia*) or open woodland vegetation of shore pine (*Pinus contorta*) with a shrub understory of kinnikinnick (*Arctostaphylos uva-ursi*) and hairy manzanita (*A. columbiana*). Tree islands of forest vegetation were present much as today, as were wetland plants associated with ponds, fens, and other wetlands.

With the introduction of non-native European beachgrass (*Ammophila arenaria*) and Scotch broom (*Cytisus scoparius*) to stabilize sand, followed by planting shore pine, the landscape of the Dunes changed dramatically. European beachgrass came to dominate open sand areas, replacing the native dune community in many areas. Its dense growth effectively trapped sand at the beach, with the resulting high foredune cutting off sand movement inland. Wind scour down to the water table on the lee side of the foredune has produced large areas of deflation plain wetland vegetation. A largely native community of Hooker's willow (*Salix hookeriana*), slough sedge

(*Carex obnupta*), and Pacific silverweed (*Argentina egedii*) now occupies a larger portion of the dunes than in the recent past. Shore pine, planted on previously un-stabilized sand, has grown into forest that has little of the understory plant diversity that would be expected in a natural woodland. Scotch broom has become widely distributed in the Dunes following its introduction and is now a component of many plant communities. Non-native plants that were not intentionally introduced, but have become invasive and are now well established, including noxious weeds such as gorse (*Ulex europaeus*), and Portuguese broom (*Cytisus striatus*). Non-native invasive plant species that may dominate on a local level include sweet vernal grass (*Anthoxanthum odoratum*), bentgrass (*Agrostis tenuis*, *A. alba*), Australian fireweed (*Erechtites minima*), and false dandelion (*Hypochaeris radicata*).

In portions of the Oregon Dunes National Recreation Area (ODNRA) where OHV use is common, vegetation may be largely absent within the open sand areas with the exception of existing tree islands and hummocks of vegetation that form in areas that are inaccessible to OHVs. The same is true for trails that provide access through more vegetated areas, but here the non-vegetated areas is mostly limited to the immediate trail.

The Oregon coast is rich in a number of plant and lichen species that occur in a narrow belt, extending no more than a few miles inland. A search of the Threatened, Endangered, Sensitive Plant database found the documented occurrence of a number of these species in the vicinity of the Project Area, but none located within or in close proximity to the Project.

Elements to be tracked

The loss of dominance for some native plant communities within the ODNRA, for the reasons discussed, has been an ongoing concern and the most limited community types are recognized as now being rare on the landscape (Christy et al. 1998). There is a need to determine if these communities exist in the project area, and if so, what potential effect the alternatives may have for their future persistence. To address this need, vegetation within all areas proposed for reallocation from Management Area 10(C) to 10(B) was inventoried and mapped using a combination of aerial photo interpretation and field verification. Plant community types followed those described in the *Plant Associations of the Oregon Dunes National Recreation Area* (Christy et al. 1998) as much as possible. The discussion of effects for each alternative will include any mapped native plant communities within each Reallocation Area, an estimation of their area, and potential adverse or beneficial effects.

Table 29 Native Plant Communities Mapped within Proposed Reallocation Areas

Proposed Reallocation Area	Riding Area	Native Plant Association within the Reallocation Area	Acres	Percent of Reallocation Area	Alternatives considered
A1	North	Hooker willow/Slough sedge-Pacific silverweed	1.9	2%	2, 4, 5
A1	North	Sickle-leaved rush-Salt rush	1.3	2%	2, 4, 5
A2	North	None	0	0	2, 4, 5
A3	North	None	0	0	2, 4, 5
A3	North	Shore pine-Sitka spruce/Evergreen huckleberry	14.0	50%	Modified 4
A3	North	Hooker willow/Slough sedge-Pacific silverweed	6.2	22%	Modified 4
A3	North	Slough sedge-Pacific silverweed	1.3	5%	Modified 4
A3	North	Hooker willow-Swamp crabapple/Slough sedge-Skunk cabbage	0.5	2%	Modified 4
A10	North	None	0	0	4
A11	North	None	0	0	5
A12	North	Sitka spruce/Evergreen huckleberry	2.6	5%	5
A13	North	None	0	0	5
A14	North	Hooker willow/Slough sedge-Pacific silverweed	437.8	96%	5
A14	North	Sickle-leaved rush-Salt rush	19.2	4%	5
A15	Middle	Sitka spruce/Evergreen huckleberry	0.2	10%	4, 5
A16	Middle	Native Vegetation with E. beachgrass subdominant*	32.7	25%	4, 5
A16	Middle	Hooker willow/Slough sedge-Pacific silverweed	29.1	22%	4, 5
A16	Middle	Shore pine-Sitka spruce/Evergreen huckleberry	15.0	11%	4, 5
A16	Middle	Sickle-leaved rush-Salt rush	2.1	2%	4, 5
A16	Middle	Sand dune sedge*	2.0	2%	4, 5
A4	South	Shore pine/Slough sedge	4.9	17%	2, 4, 5
A4	South	Slough sedge	0.4	1%	5

Proposed Reallocation Area	Riding Area	Native Plant Association within the Reallocation Area	Acres	Percent of Reallocation Area	Alternatives considered
A5	South	Hooker willow/Slough sedge-Pacific silverweed	1.0	7%	2, 4, 5
A5	South	Slough sedge	1.4	7%	2, 4, 5

*Not a recognized plant association

Non-native invasive plant species are present throughout most of the ODNRA. From area to area they can vary in terms of their local dominance and to what degree they potentially displace native species or disrupt natural processes. They may be evenly distributed over a large area, be mostly restricted to the edges of trails that are periodically disturbed by OHVs, or occur only sporadically. An existing invasive plant database provides mapped locations for a number of species that have been classified as Noxious by the State of Oregon, or are considered to be highly invasive. Included are European beachgrass, scotch broom, Portuguese broom, and gorse. Other non-native species that are prevalent in the ODNRA, but which have not been given the same degree of urgency generally include smaller, less recognized plant such as silvergrass, (*Aira praecox*, *A. caryophyllea*), false dandelion, bentgrass, velvet grass, parentucellia (*Parentucellia viscosa*), pennyroyal (*Mentha pulegium*), and others.

Non-native invasive plants are spread by wind, water, animals, and people. One mechanism of plant spread is vehicles that pick up seed and plant parts on their tires, body, and chassis, transporting them to other locations where they drop off and potentially start new infestations. No specific information was found that looks at the role OHVs may have in the spread of invasive plants in the ODNRA. Elsewhere, it has been shown that vehicles do spread invasive plants, that the potential to transport seed increases when the vehicle travels off-road, and that the amount of seed that is carried by the vehicle increases in wet conditions (MSU 2011). Because sandy soils do not stick to vehicles in the same way as finer loam or clay, the results of these studies may not be directly applicable to conditions in the project area, but some seed transport by vehicles cannot be ruled out as well as the potential to introduce seed from other areas outside of the ODNRA where vehicle may have been. The potential to introduce or spread invasive plants by vehicle and what degree of impact that has on other resources can be ranked. Designating areas of largely native vegetation to open OHV use would have the greatest risk of impact, followed by new construction of designated routes through native vegetation within Management Area 10 (C), designating an existing user-developed trail within native vegetation, and least impacting, designating a user-developed trail through non-native vegetation or opening an area of non-native vegetation to open OHV use.

A survey for threatened, endangered and sensitive (TES) vascular plants, mosses, liverworts and lichens was conducted between February and September, 2011. Based on documented sites in the area (USDA NRIS 2010) and the potential to find suitable habitat within the project area, the survey targeted 14 vascular plant, 2 moss and 10 lichen species. No sites were located, therefore the effect of all alternatives on TES botanical species is no impact and further discussion is not needed.

Threatened, Endangered, and Sensitive Vascular Plants, Mosses, Liverworts and Lichens

A survey for threatened, endangered, and sensitive (TES) vascular plants, mosses, liverworts, and lichens was conducted between February and September, 2011. Based on documented sites

in the area (USDA NRIS 2010) and the potential to find suitable habitat within the project area, the survey targeted 14 vascular plant, 2 moss, and 10 lichen species. The effect of all alternatives on TES botanical species is no impact and further discussion is not needed.

Table 30. Sensitive species included in the project survey

Scientific Name	Common Name
Vascular Plants	
<i>Artemisia pycnocephala</i>	coastal sagewort
<i>Brodiaea terrestris</i>	dwarf brodiaea
<i>Carex brevicaulis</i>	short-stemmed sedge
<i>Carex macrocephala</i>	big-headed sedge
<i>Carex macrochaeta</i>	large-awn sedge
<i>Cicendia quadrangularis</i>	timwort
<i>Cordylanthus maritimus</i> ssp. <i>palustris</i>	salt-marsh bird's beak
<i>Gilia millefoliata</i>	seaside gilia
<i>Hydrocotyle verticillata</i>	water pennywort
<i>Lilium occidentale</i>	western lily
<i>Lycopodiella inundata</i>	northern bog club moss
<i>Microseris bigelovii</i>	coast microseris
<i>Ophioglossum pusillum</i>	adder's tongue
<i>Phacelia argentea</i>	silvery phacelia
Bryophytes	
<i>Campylopus schmidii</i>	moss
<i>Limbella fryei</i>	moss
Lichens	
<i>Bryoria spiralis</i>	lichen
<i>Erioderma soledatum</i>	lichen
<i>Heterodermia leucomelos</i>	lichen
<i>Hypotrachyna revoluta</i>	lichen
<i>Leiodermia soledatum</i>	lichen
<i>Leptogium cyanescens</i>	lichen
<i>Niebla cephalota</i>	lichen
<i>Pseudocyphellaria mallota</i>	lichen
<i>Ramalina pollinaria</i>	lichen
<i>Usnea nidulans</i>	lichen

Survey and Manage

On December 17, 2009, the U.S. District Court for the Western District of Washington issued an order in Conservation Northwest, et al. v. Sherman, et al., No. 08-1067-JCC (W.D. Wash.), granting Plaintiffs' motion for partial summary judgment and finding NEPA violations in the Final Supplemental to the 2004 Supplemental Environmental Impact Statement to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines (USDA and USDI, June 2007). In response, parties entered into settlement negotiations in April 2010, and the Court filed approval of the resulting Settlement Agreement on July 6, 2011. On April 25, 2013 the Ninth Circuit reversed the Western District Court of Washington at Seattle's decision in

Conservation Northwest v. Sherman, 715 F.3d 1181, 1189 (9th Cir. 2013) order approving the 2011 Consent Decree. On February 18, 2014 the District Court ruled that Agencies may proceed developing projects under the terms of the 2011 Consent Decree for projects that fall within one or more of the following categories of projects: (1) projects in which any Survey and Manage pre-disturbance survey(s) has been initiated (defined as at least one occurrence of actual in-the-field surveying undertaken according to applicable protocol) in reliance upon the Consent Decree on or before April 25, 2013; (2) projects, at any stage of project planning, in which any known site(s) (as defined by the 2001 Record of Decision) has been identified and has had known site-management recommendations for that particular species applied to the project in reliance upon the Consent Decree on or before April 25, 2013, and (3) projects, at any stage of project planning, that the Agencies designed to be consistent with one or more of the new exemptions contained in the Consent Decree on or before April 25, 2013.

Survey and Manage pre-disturbance surveys had been initiated prior to April 25, 2013 and therefore the Oregon Dunes NRA Designated Routes Project applies the Survey and Manage species list in the 2011 Settlement Agreement and thus meets the provisions of the 2001 Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines, as modified by the 2011 Settlement Agreement.

The project area includes a small amount of mature forest habitat greater than 80 years old which does have potential for four Management Category A and C species which require surveys if habitat disturbing activities are proposed. All four, *Bryoria pseudocapillaris*, *Bryoria spiralifera*, *Niebla cephalota* and *Pseudocyphellaria perpetua*, grow on the branches and boles of conifers.

A survey completed for sensitive species also targeted Survey and Manage species in Management Category E which have potential habitat in the project area. Surveys for these species are not required, however incidental sites would be managed if found. Table 26 displays Survey and Manage species with potential habitat in the project area.

Table 31. Survey and Manage species with potential habitat in the project area.

SPECIES	Taxa Group	Management Category
<i>Bryoria pseudocapillaris</i>	Lichen	A
<i>Bryoria spiralifera</i>	Lichen	A
<i>Niebla cephalota</i>	Lichen	A
<i>Pseudocyphellaria perpetua</i>	Lichen	A
<i>Buellia oidalea</i>	Lichen	E
<i>Heterodermia sitchensis</i>	Lichen	E
<i>Hypotrachyna revoluta</i>	Lichen	E
<i>Pannaria rubiginosa</i>	Lichen	E
<i>Usnea hesperina</i>	Lichen	E

Concurrent with the survey for TES species, nine survey and manage species identified as having potential habitat within the project area were included in the list of target species. All nine are lichens which have varying habitat preferences including the boles and branches of conifers, hardwoods, and shrubs. There are no documented occurrences of these lichens in the immediate project area and none were located by the survey. Therefore, it is determined that the project would not have an effect on survey and manage species.

In summary, the following measures will be tracked to compare the recreation effects of all five alternatives:

- Amount and type of native vegetation in each area proposed to move to 10(B)
- Risk of introducing or spreading non-native invasive plants

Alternative 1 (No Action)-Botany

Direct and Indirect Effects

This alternative would not reallocate any new areas from Management Area 10 (C) to Management Area 10 (B) or add any new designated routes. A total of about 135 miles of user-developed trails would be closed and obliterated or allowed to re-vegetate naturally.

Native Vegetation

Because no areas would be reallocated from Management Area 10 (C) to Management Area 10 (B) and no new designated routes would be added, there would be no effect to native vegetation. User-developed trails that are non-vegetated and traverse areas of native vegetation would likely re-colonize with the prevalent native species in the area. As a result, the overall native vegetation would likely increase in the short-term. Overall, Alternative 1 would have a beneficial effect on native vegetation.

Whether plants colonizing non-vegetated areas of newly closed trails would be native or non-native species depends in large part on what the dominant vegetation in the adjacent area is. In the short-term, restored trails would likely re-vegetate with native species as these tend to establish faster on bare sand, but later areas could become predominately non-native if that is what dominates adjacent areas. Overall, Alternative 1 would have no risk of introducing or spreading invasive plants.

Invasive Plants

The 135 miles of user-developed trails proposed to be closed would reduce the potential to introduce or spread invasive plants along their routes. Closing user-developed trails to OHV use would eliminate a source of introduction of invasive species in those areas. The effect of this is dependent on what the existing condition is. In situations where vegetation adjacent to the trail is primarily non-native and invasive, it could be expected that in the long-term, without active restoration, these same plants would dominate the former trail. If the area is primarily made up of native species, then re-colonization of the trail by natives may provide some resistance against future encroachment by invasive species.

Overall, Alternative 1 would have a low risk of introducing or spreading invasive plants.

Table 32. Alternative 1 Invasive Species Risk

Alternative component	Area	Invasive Species Risk
Reallocation from MA 10 (C) to MA 10 (B)	0 acres	None
New Designated Routes	0 miles	None
Closing User-developed Routes	135 miles	Low

Cumulative Effects

The 135 miles of user-developed trails that would be closed would re-vegetate once OHV use is discontinued. Where the surrounding vegetation adjacent to the trail is primarily non-native and invasive, it could be expected that in the long-term, without active restoration, these same species would dominate the former trail through plant dispersal from wind, animals, and natural population increase. Cumulatively, by restricting OHV use on these user-created trails the size of invasive infestations may increase up to about 200 acres which is about five percent of Management Area 10 (C).

Alternative 2 (Proposed Action) -Botany

Direct and Indirect Effects

This alternative would add nine designated routes for a total of 3.4 miles. In addition, six areas would be reallocated from Management Area 10 (C) to Management Area 10 (B) for a total of 234 acres, and about 102 miles of unauthorized user-developed routes would be closed and obliterated or allowed to re-vegetate naturally.

Native Vegetation

The nine proposed designated routes are existing user-developed trails and are largely lacking vegetation as the result of past and present OHV use. Continuation of this use will not have an effect on the current extent of native vegetation in the project area.

Areas proposed for reallocation consist of both native and non-native plant communities as displayed in Table 25.

Table 33. Effects of Alternative 2 on Native Plant Communities within Reallocation Areas

Proposed Reallocation	Riding Area	Native Plant Association	Acres	Estimated Sensitivity to Disturbance	Effect of the Reallocation
A1	North	Hooker willow/Slough sedge-Pacific silverweed	1.9	Low	Low impact
A1	North	Sickle-leaved rush-Salt rush	1.3	Moderate	Moderate impact
A15	Middle	Sitka spruce/Evergreen huckleberry	0.2	Moderate	Moderate impact
A4	South	Shore pine/Slough sedge	0.3	Moderate	High impact
A5	South	Hooker willow/Slough sedge-Pacific silverweed	1.0	Low	Low impact
A5	South	Slough sedge	1.0	Moderate	Moderate impact

Reallocation Area A1 is largely composed of the Shore pine/Scot's broom/European beachgrass plant association and areas of non-vegetated sand. Dominant plants in this community are non-native invasive species Scotch broom and European beachgrass. Plant associations dominated by native species occur in small areas along the western boundary that are seasonally flooded during the wet season. The Hooker willow/Slough sedge-Pacific silverweed and Sickle-leaved rush-Salt rush plant associations account for about 4 percent of the total area of the A1 Reallocation Area. In terms of sensitivity to disturbance from OHV traffic, the Hooker willow association receives little or no use due to the height and density of the vegetation, making access for OHVs difficult. Sickle-leaved rush-Salt rush consists of herbaceous vegetation and is prone to disturbance by OHVs, however high water during a portion of the year would afford some protection. Once these areas are accessible, increased OHV traffic may result in some degradation. Due to the rhizomatous growth of the dominant rush species, only continued high use would eliminate the vegetation. Invasion by non-native plant species following disturbance is generally not a threat because most invasive species known from the immediate area are not tolerant of seasonal flooding.

Reallocation Areas A2 and A3 are mostly in the European beachgrass and Shore pine/Scot's broom/European beachgrass associations. Native plants are present, particularly in the foredune habitat of A2, but they are a minor component or only dominate in small areas. Among these are

American dunegrass (*Leymus mollis*) a native grass of beaches and sand, yarrow (*Achillea millefolium*), beach pea (*Lathyrus japonicus*) and pearly everlasting (*Anaphalis margaritacea*).

South Area A4 is almost entirely Shore pine/Scot's broom/European beachgrass but does contain less than one acre of Shore pine/Slough sedge Seasonally Flooded Forest. This plant community occurs sporadically along the coast between northern California and southwest Washington in depressions on deflation plains that are seasonally flooded (Christy et al. 1998). The small area in A4 has received heavy OHV pressure and is in a highly degraded condition. Under Alternative 2, this trend would be expected to continue with the eventual loss of the site due to its small size and OHV use patterns.

Reallocation Area A5 is a mix of Shore pine/Scot's broom/European beachgrass, European beachgrass, and non-vegetated sand. Native vegetation in the Hooker willow/Slough sedge-Pacific silverweed and Slough sedge Seasonally Flooded Herbaceous Vegetation associations account for about 15 percent of the Area and can be found in seasonally flooded habitat. As discussed, the height and density of vegetation in the Hooker willow association usually makes it inaccessible to OHV use. Slough sedge is a lower-growing herbaceous plant that is judged to be moderately sensitive to disturbance from OHVs. Because it grows in areas that are inundated with water for a portion of the year, OHV access is limited. When accessible, there could be some degradation from OHVs, particularly in a drier than normal year. The rhizomatous nature of the plant and the lack of invasive species threat in its habitat could allow vegetation to recover during non-use periods.

Reallocation Area A15 was formerly native forest in the Sitka spruce/Evergreen huckleberry association but intense use over the years has resulted in a shift to non-vegetated sand with some remnant forest remaining. Under the proposed action, this process would continue resulting in the loss of about 0.2 acres of native vegetation.

All proposed designated routes are existing user-developed trails. OHV use has removed most vegetation within the frequently used portions of the trail and selecting the Alternative would not reduce native vegetation in these areas.

Invasive Plants

The proposal to reallocate 234 acres from Management Area 10 (C) to Management Area 10 (B) would increase the potential for invasive plants to move into these areas. The impact of an increase in the presence of invasive species is largely dependent on what the existing vegetation is. Contributing additional Scotch broom seed to an area where it is already dominant would not result in any great change and the effect may be neutral. A large proportion of the proposed reallocation area (98%) is mapped as non-native plant communities, and in these areas this would be the case. For the remaining 2 percent that is identified as having largely native vegetation, there would be a medium risk of impact from the spread and introduction of invasive plants because they are either associated with wetlands that are less prone to invasion, or are anticipated to be lost over time from OHV pressure.

Intensive OHV use can reduce or eliminate the colonization of invasive European beachgrass and an argument could be made that reallocating areas from Management Area 10 (C) to 10 (B) may provide some control of this species. To be effective however, high frequency and duration of use would need to be maintained over an entire area. Because areas proposed for reallocation

were selected for their potential to provide trail riding opportunities, use patterns would not likely result in any real reduction in European beachgrass.

All of the 3.4 miles of new proposed designated routes are existing user-developed trails. About 0.7 miles, or 20 percent of the total, is adjacent to vegetation communities that are predominately native. These routes are identified as R5, R8, and R10. Invasive species such as Scotch broom, gorse, Portuguese broom, and a number of herbaceous plants could be expected to colonize areas along routes, potentially spreading from the trail and impacting nearby vegetation. Because the proposed routes are existing user-developed trails, the risk is moderate.

The 102 miles of user-developed trails proposed to be closed would reduce the potential to introduce or spread invasive plants along their routes. Closing user-developed trails to OHV use would eliminate a source of introduction of invasive species in those areas. The effect of this is dependent on what the existing condition is. In situations where vegetation adjacent to the trail is primarily non-native and invasive, it could be expected that in the long-term, without active restoration, these same plants would dominate the former trail. If the area is primarily made up of native species, then re-colonization of the trail by natives may provide some resistance against future encroachment by invasive species.

Overall, Alternative 2 would have a moderate risk of introducing or spreading invasive plants.

Table 34. Alternative 2 Invasive Species Risk

Alternative component	Area	Invasive Species Risk
Reallocation from MA 10 (C) to MA 10 (B)	234 acres	Moderate
New Designated Routes	3.4 miles	Moderate
Closing User-developed Routes	102 miles	Low

Cumulative Effects

The 102 miles of user-developed trails that would be closed would re-vegetate once OHV use is discontinued. Where the surrounding vegetation adjacent to the trail is primarily non-native and invasive, it could be expected that in the long-term, without active restoration, these same species would dominate the former trail through plant dispersal from wind, animals, and natural population increase. Cumulatively, by restricting OHV use on these user-created trails the size of invasive infestations may increase up to about 150 acres which is about 3 percent of Management Area 10 (C).

Alternative 3-Botany

Under this Alternative, eleven new designated routes are proposed, totaling 3.6 miles. No reallocations of lands from Management Area 10 (C) to 10 (B) are proposed. In addition, 131 miles of user-developed trails not proposed as designated routes would be closed and either allowed to re-vegetate naturally or with active restoration efforts.

Native Vegetation

All proposed new designated routes are existing user-developed trails. OHV use has removed most vegetation within the frequently used portions of the trail and Alternative 3 would not reduce native vegetation.

Invasive Plants

All 3.6 miles of new proposed designated routes are existing user-developed trails. As with Alternative 2, about 0.7 miles, or 20 percent, of the total is adjacent to vegetation communities along Routes R5, R8, and R10 are predominately native. Because the proposed routes are existing user-developed trails, the risk of introducing and spreading invasive species is moderate.

The 131 miles of user-developed trails proposed to be closed would reduce the potential to introduce or spread invasive plants along their routes. There is not risk that this component of the alternative would contribute to the introduction and spread of invasive species.

Overall, Alternative 3 would result in a low to moderate level of risk to contribute to invasive plant introduction and spread.

Table 35. Alternative 3 Invasive Species Risk

Alternative component	Area	Invasive Species Risk
Reallocation from MA 10 (C) to MA 10 (B)	0 acres	None
New Designated Routes	3.6 miles	Moderate
Closing User-developed Routes	131 miles	Low

Cumulative Effects

The 131 miles of user-developed trails that would be closed would re-vegetate once OHV use is discontinued. Where the surrounding vegetation adjacent to the trail is primarily non-native and invasive, it could be expected that in the long-term, without active restoration, these same species would dominate the former trail through plant dispersal from wind, animals, and natural population increase. Cumulatively, by restricting OHV use on these user-created trails the size of invasive infestations may increase up to about 200 acres which is about five percent of Management Area 10 (C).

Alternative 4-Botany

Eight new routes, similar to those in Alternatives 2 and 3, would be designated for a total of 2.3 miles. Twelve areas would be reallocated from Management Area 10 (C) to 10 (B) for a total of 455 acres. In addition, about 84 miles of user-developed trails would be closed.

Direct and Indirect Effects

Native Vegetation

The eight proposed designated routes are existing user-developed trails and are largely lacking vegetation as the result of past and present OHV use. Continuation of this use will not have an effect on the current extent of native vegetation in the project area.

Areas proposed for reallocation consist of both native and non-native plant communities as displayed in Table X.

Table 36. Effect of Alternative 4 on Native Plant Communities within Reallocation Areas

Proposed Reallocation	Riding Area	Native Plant Association	Acres	Estimated Sensitivity to Disturbance	Effect of Reallocation
A1	North	Hooker willow/Slough sedge-Pacific silverweed	1.9	Low	Low impact
A1	North	Sickle-leaved rush-Salt rush	1.3	Moderate	Moderate impact
A15	Middle	Sitka spruce/Evergreen huckleberry	0.2	Moderate	Moderate impact
A16	Middle	Native Vegetation with E. beachgrass subdominant*	32.7	Moderate	Moderate impact
A16	Middle	Hooker willow/Slough sedge-Pacific silverweed	29.1	Low	Low impact
A16	Middle	Shore pine-Sitka spruce/Evergreen huckleberry	15.0	Low	Low impact
A16	Middle	Sickle-leaved rush-Salt rush	2.1	Moderate	Moderate impact
A16	Middle	Sand dune sedge*	2.0	High	High impact
A4	South	Shore pine/Slough sedge	0.3	High	High impact
A5	South	Hooker willow/Slough sedge-Pacific silverweed	1.0	Low	Low impact
A5	South	Slough sedge	1.0	Moderate	Moderate impact

*Not a described association

Effects for North Reallocation Area A1, A2, A3, Middle Area A15, and South Area A4, A5, as discussed under Alternative 2, all apply under Alternative 4.

North Reallocation Areas A6, A7, A8, A9, and A10 are a mix of the European beachgrass and Shore pine/Scot's broom/European beachgrass plant associations. With the exception of planted shore pine, native plants are of limited occurrence and invasive European beachgrass and Scotch broom are the most dominant features. Because of the degraded condition, reallocating these areas to Management Area 10 (B) would not have an effect to native vegetation.

Middle Reallocation area A16 has about 62 percent of its area in predominately native vegetation, a relatively large proportion compared to other areas proposed for reallocation. The largest mapped area is identified as "Native Vegetation with European beachgrass subdominant." Although it does have European beachgrass present, it is not dominant and the 33 acre area is

included with other areas of less degraded native vegetation. Most of this community is easily accessible to OHV traffic and there is currently an extensive network of user-developed trails. Under Alternative 4, OHV use would result in continued disturbance to vegetation and an increased likelihood that invasive species would increase as they fill areas where native plants are removed. As discussed in Alternative 2, the Hooker willow association is generally inaccessible to OHV use and no effects would be likely with reallocation from 10 (C) to 10 (B). The Shore pine-Sitka spruce/Evergreen huckleberry is also a forest association found in the southern portion of area A16. The larger size of the vegetation generally limits OHV access and user-developed trailing is light. Effects to these community types would therefore be limited to existing and newly created trails, but some degradation could be expected as invasive species continue to establish along existing trails. The Sickie-leaved rush-Salt rush association occurs in a small area in the southwest corner of A16. Currently, there are no user-developed trails. As discussed under Alternative 2, this association occurs in seasonally flooded areas where OHV access is limited during much of the year. Under the Alternative, some degradation would be expected if OHVs access the site during drier years. The Sand dune sedge community is not a described plant association, but is limited to three scattered sites of about an acre or less in A16. The sedge is a short grass-like plant that grows on well-drained, flat, sandy areas in almost pure stands or with other low-growing herbaceous plants. The community has a relatively high density of user-developed trails through it due to the flat, readily accessible terrain. Generally, the sedge is not present within the trail, likely having been removed by OHV use. Under Alternative 4 it is expected that there will be continued degradation to the community from OHV use.

All proposed designated routes are existing user-developed trails. OHV use has removed most vegetation within the frequently used portions of the trail and selecting the Alternative would not reduce native vegetation in these areas.

Invasive Plants

The proposal to reallocate 455 acres from Management Area 10 (C) to Management Area 10 (B) would increase the potential for invasive plants to move into these areas. The impact of an increase in the presence of invasive species is largely dependent on what the existing vegetation is. About 87 acres or 19 percent of the proposed reallocation area is mapped as largely native vegetation. The sand dune sedge community and the area mapped as Native Vegetation with European beachgrass as subdominant occur in habitat types that are vulnerable to invasion by invasive species. Wetland vegetation communities, which are also prominent, are less prone to invasion and are afforded some protection against invasive species.

All of the 2.1 miles of new proposed designated routes are existing user-developed trails. About 0.3 miles, or 14 percent of the total, is adjacent to vegetation communities that are predominately native. These routes are identified as R5 and R10. Invasive species such as Scotch broom, gorse, Portuguese broom, and a number of herbaceous plants could be expected to colonize areas along routes, potentially spreading from the trail and impacting nearby vegetation. Because the proposed routes are existing user-developed trails, the risk is moderate.

The 84 miles of user-developed trails proposed to be closed would reduce the potential to introduce or spread invasive plants along their routes. As in all alternatives, closing user-developed trails to OHV use would eliminate a source of introduction of invasive species in

those areas. Overall, Alternative 4 would have a moderate to high risk of introducing or spreading invasive plants.

Table 37. Alternative 4 Invasive Species Risk

Alternative component	Area	Invasive Species Risk
Reallocation from MA 10 (C) to MA 10 (B)	455 acres	High
New Designated Routes	2.1 miles	Moderate
Closing User-developed Routes	84 miles	Low

Cumulative Effects

The 84 miles of user-developed trails that would be closed would re-vegetate once OHV use is discontinued. Where the surrounding vegetation adjacent to the trail is primarily non-native and invasive, it could be expected that in the long-term, without active restoration, these same species would dominate the former trail through plant dispersal from wind, animals, and natural population increase. Cumulatively, by restricting OHV use on these user-created trails the size of invasive infestations may increase up to about 125 acres which is about 3 percent of Management Area 10 (C).

Modified Alternative 4 -Botany

Eight new routes, similar to those in Alternatives 2, 3 and 4 would be designated for a total of 2.3 miles. Twelve areas would be reallocated from Management Area 10 (C) to 10 (B) for a total of 518 acres. In addition, about 83 miles of user-developed trails would be closed.

Direct and Indirect Effects

Native Vegetation

The eight proposed designated routes are existing user-developed trails and are largely lacking vegetation as the result of past and present OHV use. Continuation of this use will not have an effect on the current extent of native vegetation in the project area.

Areas proposed for reallocation consist of both native and non-native plant communities as displayed in Table X.

Table X. Effect of Alternative 4 on native plant communities within Reallocation Areas

Proposed Reallocation	Riding Area	Native Plant Association	Acres	Estimated Sensitivity to Disturbance	Effect of Alternative
A1	North	Hooker willow/Slough sedge-Pacific silverweed	1.9	Low	Low impact
A1	North	Sickle-leaved rush-Salt rush	1.3	Moderate	Moderate impact
A3	North	Shore pine-Sitka spruce/Evergreen	14.0	Low	Low impact

Proposed Reallocation	Riding Area	Native Plant Association	Acres	Estimated Sensitivity to Disturbance	Effect of Alternative
		huckleberry			
A3	North	Hooker willow/Slough sedge-Pacific silverweed	6.2	Low	Low impact
A3	North	Slough sedge-Pacific silverweed	1.3	High	High impact
A3	North	Hooker willow-Swamp crabapple/Slough sedge-Skunk cabbage	0.5	Low	Low impact
A15	Middle	Sitka spruce/Evergreen huckleberry	0.2	Moderate	High impact
A16	Middle	Native Vegetation with E. beachgrass subdominant*	32.7	Moderate	Moderate impact
A16	Middle	Hooker willow/Slough sedge-Pacific silverweed	29.1	Low	Low impact
A16	Middle	Shore pine-Sitka spruce/Evergreen huckleberry	15.0	Low	Low impact
A16	Middle	Sickle-leaved rush-Salt rush	2.1	Moderate	Moderate impact
A16	Middle	Sand dune sedge*	2.0	High	High impact
A4	South	Shore pine/Slough sedge	0.3	High	High impact
A5	South	Hooker willow/Slough sedge-Pacific silverweed	1.0	Low	Low impact
A5	South	Slough sedge	1.0	Moderate	Moderate impact

Effects to native vegetation would be the same as Alternative 4 except for North Reallocation Area A3 which is about 78 percent native vegetation. OHV use would have a low impact on most of this vegetation because of difficult access or seasonal flooding. Five percent of the area in the Slough sedge-Pacific silverweed association would be impacted by OHVs due to easy access and sensitivity of the vegetation to disturbance. The Alternative would have a high impact to this plant association.

Invasive Plants

The proposal to reallocate 477 acres from Management Area 10 (C) to Management Area 10 (B) would have a similar potential to expand areas of invasive plants as Alternative 4. About 109 acres, or 23 percent of the proposed reallocation area is mapped as largely native vegetation. As in Alternative 4, the sand dune sedge community and the area mapped as Native Vegetation with European beachgrass would be most vulnerable to invasion by invasive species. Wetland vegetation communities, which are also prominent, are less prone to invasion and are afforded some protection against invasive species.

All of the 2.1 miles of new proposed designated routes are existing user-developed trails. About 0.3 miles, or 14 percent of the total, is adjacent to vegetation communities that are predominately native. These routes are identified as R5 and R10. Invasive species such as Scotch broom, gorse, Portuguese broom, and a number of herbaceous plants could be expected to colonize areas along routes, potentially spreading from the trail and impacting nearby vegetation. Because the proposed routes are existing user-developed trails, the risk is moderate.

The 83 miles of user-developed trails proposed to be closed would reduce the potential to introduce or spread invasive plants along their routes. As in all alternatives, closing user-developed trails to OHV use would eliminate a source of introduction of invasive species in those areas.

Overall, Modified Alternative 4 would have a moderate to high risk of introducing or spreading invasive plants.

Alternative component	Area	Invasive Species Risk
Reallocation from MA 10 (C) to MA 10 (B)	518 acres	High
New Designated Routes	2.3 miles	Moderate
Closing User-developed Routes	83 miles	Low

Cumulative Effects

User-developed trails that are closed would re-vegetate once OHV use is discontinued. Where the surrounding vegetation adjacent to the trail is primarily non-native and invasive, it could be expected that in the long-term, without active restoration, these same species would dominate the former trail through plant dispersal from wind, animals, and natural population increase. Cumulatively, these actions may increase the size of infestations somewhat.

Alternative 5-Botany

Direct and Indirect Effects

Native Vegetation

The ten proposed designated routes are existing user-developed trails and are largely lacking vegetation as the result of past and present OHV use. Continuation of this use will not have an effect on the current extent of native vegetation in the project area.

Areas proposed for reallocation consist of both native and non-native plant communities as displayed in Table 33.

Table 38. Native Plant Communities within Reallocation Areas in Alternative 5

Proposed Reallocation	Riding Area	Native Plant Association	Acres	Estimated Sensitivity to Disturbance	Effect of Reallocation
A1	North	Hooker willow/Slough sedge-Pacific silverweed	1.9	Low	Low impact
A1	North	Sickle-leaved rush-Salt rush	1.3	Moderate	Moderate impact
A12	North	Sitka spruce/Evergreen huckleberry	2.6	Low	Low impact
A14	North	Hooker willow/Slough sedge-Pacific silverweed	437.8	Low	Low impact
A14	North	Sickle-leaved rush-Salt rush	19.2	Moderate	Moderate impact
A15	Middle	Sitka spruce/Evergreen huckleberry	0.2	Moderate	Moderate impact
A16	Middle	Native Vegetation with E. beachgrass subdominant*	32.7	Moderate	Moderate impact
A16	Middle	Hooker willow/Slough sedge-Pacific silverweed	29.1	Low	Low impact
A16	Middle	Shore pine-Sitka spruce/Evergreen huckleberry	15.0	Low	Low impact
A16	Middle	Sickle-leaved rush-Salt rush	2.1	Moderate	Moderate impact
A16	Middle	Sand dune sedge*	2.0	High	High impact
A4	South	Shore pine/Slough sedge	4.9	High	High impact
A4	South	Slough sedge	0.3	Moderate	Moderate impact
A5	South	Hooker willow/Slough sedge-Pacific silverweed	1.0	Low	Low impact
A5	South	Slough sedge	1.0	Moderate	Moderate impact

Effects for North Reallocation Area A1, A2, A3, Middle Area A15, A16, and South Area A5 have been discussed under Alternatives 2 or 4 and apply under Alternative 5.

North Reallocation Area A11 and A13 are a mix of the European beachgrass and Shore pine/Scot's broom/European beachgrass plant associations. With the exception of planted shore pine, native plants are of limited occurrence and invasive European beachgrass and Scotch broom are the most dominant features. Because of the degraded condition, reallocating these areas to Management Area 10 (B) would not have an effect to native vegetation.

North Reallocation Area A12 primarily consists of the Shore pine/Scot's broom/European beachgrass plant association. Five percent of the area is in the native Sitka spruce/Evergreen huckleberry association. This forest area is a mature natural stand occurring along a steep precipitation ridge. OHV use has been light due to its inaccessibility to vehicles and thick vegetation. Under Alternative 5, this trend would likely continue and no effect is likely. Just outside Area A12 adjacent to its east boundary a wetland area of native vegetation has been impacted by user-developed trails. Access to the wetland originates from a number of directions, including A12. Under in what is the through the area have had impacts on the sensitive wetland vegetation (stick under cumulative effects).

North Reallocation Area A14 is a deflation plain occupied by a Hooker willow/Slough sedge-Pacific silverweed plant association. The eastern leading edge of the expanding deflation plain is in the Sick-leaved rush-Salt rush association accounting for about 4 percent of the total. Limited user-developed OHV trails exist in areas where flooding and vegetation do not preclude access. Impacts to native vegetation would likely occur on a localized basis in higher use areas that do not flood or support lower-growing herbaceous vegetation rather than trees and shrubs.

South Area A4 consists of two separate areas. The south portion, discussed under Alternatives 2 and 4 is almost entirely Shore pine/Scot's broom/European beachgrass with less than one acre of Shore pine/Slough sedge Seasonally Flooded Herbaceous Vegetation. The north portion is primarily Shore pine/Slough sedge with smaller amounts of Slough sedge Seasonally Flooded Herbaceous Vegetation. The Shore pine/Slough sedge association occurs sporadically along the coast between northern California and southwest Washington in small stands rarely greater than 10 acres in size (Christy et al. 1998). The stand in Area A4 is inundated by water during the winter but intensive use by OHVs during the drier months has resulted in fragmentation and the vegetation is in a degraded condition. Under Alternative 5 this trend would continue with further degradation and the loss of some portion of the stand. Areas of Slough sedge also receive similar intensive OHV use during the drier part of the year. There has been some degradation to vegetation and the effect of Alternative 5 would be to continue that trend.

All proposed designated routes are existing user-developed trails. OHV use has removed most vegetation within the frequently used portions of the trail and selecting the Alternative would not reduce native vegetation in these areas.

Invasive Plants

The proposal to reallocate 966 acres from Management Area 10 (C) to Management Area 10 (B) would increase the potential for invasive plants to move into these areas. About 551 acres, or 57 percent of the proposed reallocation area, is mapped as largely native vegetation. This is the largest overall proportion of native vegetation of all the alternatives. As in Alternative 4, the sand dune sedge community and the area mapped as Native Vegetation with European beachgrass as

subdominant are the most vulnerable to invasion by invasive species. Wetland vegetation communities account for a large proportion of the native vegetation, particularly in A14. As mentioned under Alternative 4, these communities are more resistant to invasion because most of the invasive species in the immediate area are not tolerant of periodic flooding.

All of the 2.9 miles of new proposed designated routes are existing user-developed trails. About 0.9 miles, or 30 percent of the total, is adjacent to vegetation communities that are predominately native. These routes are identified as R5, R10, R12, and R13. Invasive species such as Scotch broom, gorse, Portuguese broom, and a number of herbaceous plants could be expected to colonize areas along routes, potentially spreading from the trail and impacting nearby vegetation. Because the proposed routes are existing user-developed trails, the risk is moderate.

The 62 miles of user-developed trails proposed to be closed would reduce the potential to introduce or spread invasive plants along their routes. As in all alternatives, closing user-developed trails to OHV use would eliminate a source of introduction of invasive species in those areas.

Overall, Alternative 5 would have a moderate to high risk of introducing or spreading invasive plants.

Table 39. Alternative 5 Invasive Species Risk

Alternative component	Area	Invasive Species Risk
Reallocation from MA 10 (C) to MA 10 (B)	966 acres	High
New Designated Routes	2.9 miles	Moderate
Closing User-developed Routes	62 miles	Low

Cumulative Effects

The 62 miles of user-developed trails that would be closed would re-vegetate once OHV use is discontinued. Where the surrounding vegetation adjacent to the trail is primarily non-native and invasive, it could be expected that in the long-term, without active restoration, these same species would dominate the former trail through plant dispersal from wind, animals, and natural population increase. Cumulatively, by restricting OHV use on these user-created trails the size of invasive infestations may increase up to about 95 acres which is about 2 percent of Management Area 10 (C).

Comparison of Alternatives

Table 40. Comparison of Botanical Effects by Alternative

Alternative	TES Species	Effect to Native Vegetation where 1=least (beneficial) and 6=greatest impact.	Invasive Species Risk
1	No impact	1	Low
2	No Impact	3	Moderate
3	No Impact	2	Low-Moderate
4	No Impact	4	High
Modified 4	No Impact	5	High
5	No Impact	6	High

Wildlife (District Wildlife Biologist, USFS, 2012b)

For further details and discussion of wildlife, please see the specialist report pertaining to these topics (USFS, 2012b).

Forest Service Policy requires that all actions be taken to “assure that management activities do not jeopardize the continued existence of sensitive species or result in an adverse modification of their essential habitat” (FSM 2670.3). Section 7 of the Endangered Species Act of 1973 (as amended in 1978, 1979, and 1982) directs Federal departments/agencies to assure that actions authorized, funded, and/or conducted by them are not likely to jeopardize the continued existence of any threatened or endangered species or result in destruction or adverse modification of their critical habitat. The Act also directs each Federal agency to confer or consult with the appropriate Secretary on any action that is likely to jeopardize or affect the continued existence of any species or its habitat. All Forest Service projects, programs and activities require review and documentation of possible effects on Proposed, Endangered, Threatened or Sensitive (PETS) species (FSM 2672.4). In compliance with these directions and policies a biological evaluation must be performed for all federalized ground disturbing activities.

Table 1 lists the PETS species occurring on the Siuslaw National Forest. They are based on the Region 6 Regional Forester’s Special Status Species list dated December 9, 2011 and the current U.S. Fish and Wildlife Service Federal Species List.

Table 41. Siuslaw National Forest Threatened (T), Endangered (E) and USFS Region 6 Sensitive (S) Wildlife Species List

Scientific Name	Common Name	Classification
<i>Brachyramphus mamoratus</i>	Marbled murrelet	T
<i>Strix occidentalis caurina</i>	Northern spotted owl	T
<i>Pelecanus occidentalis californicus</i>	California brown pelican	S
<i>Charadrius nivosus nivosus</i>	Western snowy plover	T
<i>Speyeria zerene hippolyta</i>	Oregon silverspot butterfly	T
	Aleutian Canada Goose	S
<i>Falco peregrinus anatum</i>	American peregrine falcon	S
<i>Haliaeetus leucocephalus</i>	Northern bald eagle	S
		S
<i>Progne subis</i>	Purple Martin	S
<i>Rana boylei</i>	Foothill Yellow-legged frog	S
<i>Actinemys marmorata</i>	Pacific pond turtle	S
<i>Arborimus longicaudus</i>	Oregon red tree vole	S
<i>Gulo gulo luscus</i>	North American wolverine	S
<i>Martes pennanti (west coast)</i>	Pacific Fisher	S
<i>Myotis thysanoides</i>	Fringed myotis	S
<i>Gonidea angulata</i>	Western ridged mussel	S
<i>Cryptomastix devia</i>	Puget Oregonian	S
<i>Deroceras hesperium</i>	Evening field slug	S
<i>Littorina subrotundata</i>	Newcomb’s Littorine Snail	S
<i>Cicindela hirticollis siuslawensis</i>	Siuslaw Sand Tiger Beetle	S

Scientific Name	Common Name	Classification
<i>Bombus occidentalis</i>	Western bumble bee	S
<i>Plebejus saepiolus littoralis</i>	Insular Blue butterfly	S
<i>Pomatiopsis californica</i>	Pacific walker	S
<i>Pterostichus rothi</i>	Roths's blind ground beetle	S
<i>Lygus oregonae</i>	Oregon plant bug	S
<i>Callophrys johnsoni</i>	Johnson's hairstreak	S
<i>Callophrys polios maritima</i>	Hoary elfin	S
<i>Rhyacophila haddocki</i>	Haddock's rhyacophilan caddisfly	S
<i>Namamyia plutonis</i>	caddisfly	S

Effects Analysis

At the time the wildlife effects analysis was completed for the Siuslaw Forest Management Plan (1990) and the Management Plan for the Oregon Dunes National Recreation Area (1994) it was expected that amount of vegetated landscape across the ODNRA would continue to increase, primarily due to the introduction of non-native plant species (USFS 1994). It should also be noted that while location of OHV use may be changed by project alternatives, overall OHV use and capacity is not expected to be altered.

Overall it is expected that user created trail closures will concentrate OHV use and noise disturbance to designated routes thereby reducing noise disturbance levels in areas where OHV trails are proposed to be closed. User created trail closures are also expected to reduce loss of vegetated wildlife habitat.

Effects of OHV use on wildlife have been well documented (Barton 2006, Ouren et. al. 2007, Stokowski and LaPointe 2000 and USFWS 2007) and was discussed and evaluated in the Dunes FEIS (1994). Disturbance from OHV use can negatively impact wildlife in a variety of ways and different species may be impacted in different ways. Slow moving reptiles, amphibians, small mammals, birds and /or their nests etc. can be run over by OHV traffic. Disturbance from OHV traffic can also disrupt behavior patterns, cause animals to flee or flush and increase stress levels which can lead to lower productivity, reduction of energy stores and increase in incidence of disease respectively. Continued disturbance can cause individuals to shift from preferred habitats to less than optimal habitats. Some wildlife species are more tolerant of human activities than others. Human disturbance tends to decrease wildlife species diversity because species more sensitive to human activities are more likely to abandon disturbed areas. Loud noise from vehicles can cause physical harm and temporary or permanent damage to some animals (Ouren et. al 2007). Disruption of hearing can cause animals to be more susceptible to predation or less efficient at killing prey.

The following were used to determine PETS (proposed, endangered, threatened, or sensitive) species occurrences and suitable habitat within the project area: Forest GIS layers, discussions with the Forest Biologist, existing species accounts and distribution maps, survey records and field review.

Federally-listed Species

No known nest sites, suitable habitat, or proposed or designated critical habitat exist in the project area for marbled murrelet, northern spotted owl or Oregon silverspot butterfly therefore proposed project activities will have no effect on these species.

Potential effects related to implementation of the MA 10 (C) Route Designation Project are assessed for the following species.

Western snowy plover (*Charadrius nivosus nivosus*)

In 1993, the Pacific coast population of the western snowy plover was listed as a Federally Threatened species due to loss and degradation of nesting habitat, predation, and disturbance caused by recreational use (58 FR 12864). The listed population uses sandy beaches along the Pacific Coast from southern Washington to Baja California for breeding and wintering.

Approximately 2000 snowy plovers breed along the Pacific coast of the United States and at least another 2000 breed along the west coast of Baja (FWS 1999). The population is distributed among six recovery units with Recovery Unit 1 encompassing the states of Washington and Oregon.

In cooperation with federal and state agencies, plover management focuses on habitat restoration and maintenance at breeding sites, predator control, and management of human related disturbances to nesting plovers.

The goal of management is to increase annual productivity to the point where recovery objectives are met. The western snowy plover recovery plan established the following recovery criteria and strategies for the U.S. Pacific coast western snowy plover population (FWS 2007):

1. Maintain for 10 years an average of 3,000 breeding adults distributed among six recovery units as specified. As stated above, the Action Area is within Recovery Unit 1 which includes both Oregon and Washington. The population goal for Recovery Unit 1 is 250 breeding adults.
2. Maintain a 5 - year average productivity of at least one fledged chick per male in each recovery unit in the last five years prior to delisting.
3. Have in place participation plans among cooperating agencies, landowners, and conservation organizations to assure protection and management of breeding, wintering and migration areas to maintain the subpopulation sizes and average productivity specified in criteria 1 and 2.

Historically, snowy plovers nested at 29 locations along the Oregon coast (FWS 2001). By 1999, only seven sites remained occupied (Castelein et. al 1999). Intensive management efforts initiated in the 1990's led to an increase in the Oregon population from 55-61 breeding adults at seven sites in the early 1990's to an estimated 214 breeding adults plovers at eight sites by 2011 (Castelein et. al. 2011).

Use of Oregon Dunes National Recreation Area (ODNRA) beaches by snowy plovers for breeding and wintering has been well documented. The Nature Conservancy began nest monitoring in 1992 at Tenmile Creek and in 1993 for Siltcoos and Tahkenitch Creek. Populations and breeding success of plover have rebounded considerably at most sites since the early 1990's (Table 2.).

Table 42. Comparison of breeding statistics for snowy plover nesting at Siltcoos, Tahkenitch and Tenmile Creek 1993-1997 vs. 2007-2011.

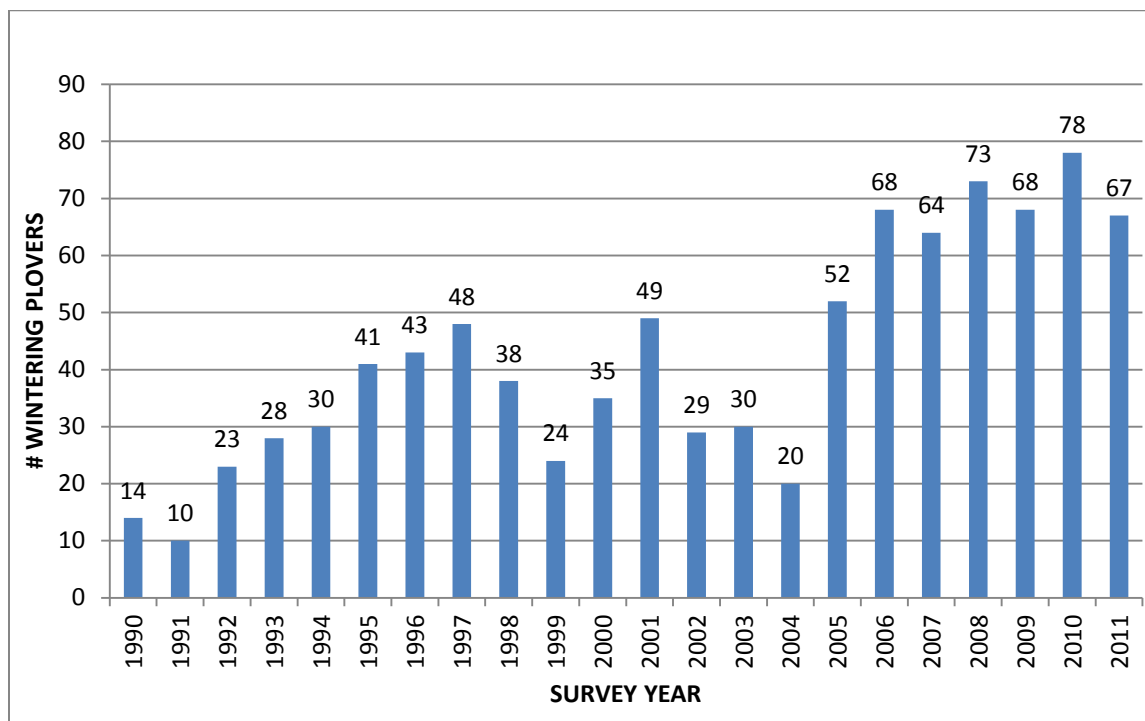
	Average Number of Breeding Males 1993-1997/2007-2011	Fledged Young 1993-1997/2007-2011	Average Fledglings/Male 1993-1997/2007-2011
Siltcoos	1.8/10.6	3/55	0.20/1.04
Tahkenitch	5.2/3.8	27/25	0.75/0.80
Tenmile	3.4/12.8	18/71	1.2/1.31

In 1998 the Siuslaw National Forest initiated a dune restoration project near the Oregon Dunes Day Use area (formerly named Dunes Overlook) located west of Highway 101 midway between Florence and Reedsport, Oregon. The main objective of the project was to restore natural dune processes and to enhance the unique scenic and recreational qualities of this highly visited site. During the spring of 1999, within months of re-shaping and clearing European beachgrass and shore pine from the foredune, snowy plover began to inhabit the area which lies between Siltcoos and Tahkenitch nesting areas. Since its creation, over 120 young have fledged from the area. During the past five nesting seasons (2007-2011) an average of 10.8 breeding males have averaged 1.31 chicks/male and fledged 85 young.

During the past several years, as populations have increased, plover have gradually expanded nesting to include many of the linear beach stretches in between the above mentioned traditional nesting areas. Productivity data for these nests has been added into nesting data from the nearest traditional nesting site. In 2011, 84 of the 168 plover chicks fledged on the Oregon Coast came from Siuslaw N.F. nesting sites.

At the conclusion of the breeding season snowy plover begin to form loose wintering flocks and can be found on the same beaches used for nesting or on beaches where they do not nest. Beaches within the ODNRA provide important wintering habitat. In most years roughly half of the Oregon wintering population of snowy plovers winter on beaches within the ODNRA. Within the ODNRA, Siltcoos estuary/breach and Tenmile estuary receive the most use by wintering birds however use between the Siltcoos and Tahkenitch spit nesting areas appears to be increasing. Wintering numbers of plover on the ODNRA have increased considerably since 1990 presumably coinciding with the overall population increase in Oregon (Chart 1.).

Figure 20 ODNRA snowy plover wintering population 1990 – 2011.



Data source: USFWS winter window surveys 1990-2011.

Most wintering use occurs on the ocean beach however inland areas provide needed refuge when beach conditions become inhospitable due to winter storms or extreme high tides. Two inland areas are known to be used.

The first location is the south end of the North Riding Area near the eastern edge of the deflation plain and west side of the open sand OHV riding area north of Driftwood II Campground. This area is directly east of the Siltcoos Breach. Snowy plover have been documented roosting and feeding during the day at this location. Plover appear to prefer roosting in vehicle tracks at this location. Feeding activity has been noted on the open sand as well as along the eastern edge of the adjacent deflation plain. It is unknown if this site is used after dark.

The second area is at Parking Lot 3 (the furthest south) at Umpqua Beach within the Middle Riding Area. In early March of 1999 a group of up to 19 plovers, seven of which had recently been rehabilitated after being oiled during the New Carissa oil spill incident, were observed using the beach west of parking lot 3 and near the pond that forms seasonally on the east side of the parking lot. It appeared that plovers were using the site as a night roost. Plovers continued to use the site through early April. The area is not regularly monitored for plover so it is unknown if plovers have used the area since 1999.

Duration of use of inland areas has not been formally monitored. Use of the sand flats north of Driftwood II Campground appears to coincide with severe weather and/or extreme high tides. It is thought that use at this site is usually brief, lasting only until beach conditions improve. It is possible that plovers use other locations within the project area but no formal surveys have been conducted to locate other inland sites. It is unknown if plover use these areas after dark as no nighttime surveys have been conducted.

On the beach where the upland land owner is the Federal Government (Siuslaw National Forest) Federal jurisdiction begins at the mean high water line and extends inland. Oregon Parks and Recreation Department has adjoining jurisdiction of lands from the mean high water line westward to the mean low water line. Snowy plover utilize habitat elements of both jurisdictions for breeding and wintering and it is commonplace for movement to occur between the two jurisdictions at any given time.

STATUS OF CRITICAL HABITAT

The final rule for designation of critical habitat for the western snowy plover was published in the Federal Register on June 19, 2012 (77 FR 118). This rule established 16 Critical Habitat Units (CHU) in Oregon. There are 6 critical habitat units designated on the Siuslaw, 5 were designated primarily as nesting habitat and one for wintering habitat (OR-8a). Except for OR-8a, none of the units are in the planning area, and no changes are proposed for the management of those areas. Thus for all units except OR-8a the project will have no effect on those critical habitat units.

Critical Habitat features essential for the conservation of the snowy plover are termed Primary Constituent Elements (PCE's). Critical Habitat Subunit OR-8A includes the following PCE's (77 FR 118):

1. Areas that are below heavily vegetated areas or developed areas and above the daily high tides;
2. Shoreline habitat areas for feeding, with no or very sparse vegetation, that are between the annual low tide or low water flow and annual high tide or high water flow, subject to inundation but not constantly under water, that support small invertebrates, such as crabs, worms, flies, beetles, spiders, sandhoppers, clams, and ostracods, that are essential food sources;
3. Surf- or water-deposited organic debris, such as seaweed (including kelp and eelgrass) or driftwood located on open substrates that supports and attracts small invertebrates described in PCE 2 for food, and provides cover or shelter from predators and weather, and assists in avoidance of detection (crypsis) for nests, chicks, and incubating adults.

Critical Habitat Unit (CHU) OR-8A, is a 15 acre opening in the foredune approximately 1.2 miles north of the Siltcoos River. It is characteristic of a dune-backed beach in close proximity to a tidally influenced river mouth. The breach was designated as Critical Habitat because it is a documented wintering area for snowy plover. Siltcoos Breach is within the proposed project's North Riding Area and is open to OHV travel year-round from 6 AM to 10 PM daily.

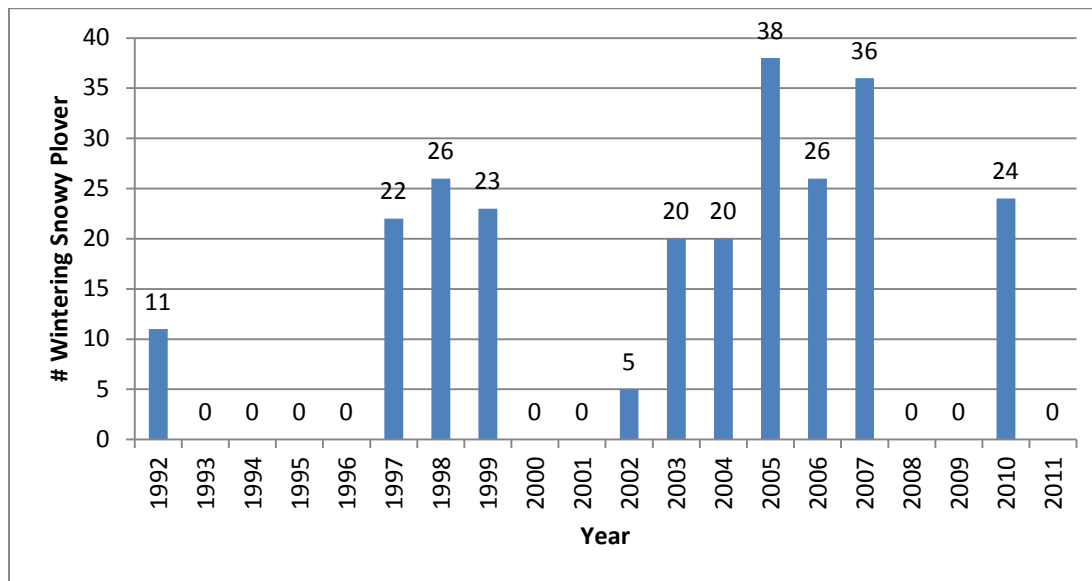
The Final Rule (77 FR 118) listed the following threats that may require special management in this CHU:

1. Sand dunes that are being degraded due to encroachment of introduced European beachgrass on the available wintering habitat;
2. Disturbance from humans, pets, and vehicles in important roosting and foraging areas.

The Siltcoos breach was created in 1982 as a dune restoration effort to encourage migration of sand onto the deflation plain (Christy et. al. 1998). It later became part of the Breach Sand Road designated route when routes were originally designated under management directed by the Oregon Dunes Management Plan. This route provides OHV access to and from Siltcoos parking lot, the Coast Guard Road and, in the summer months, access to the inland open ride area.

During fall and winter OHV use can be quite sporadic and variable ranging from little to no use, for example, mid-week or during bad weather, to moderate to high use on weekends especially during periods of mild weather.

Plover were first documented using the breach during the U.S. Fish and Wildlife Winter Window Survey in 1992. Plover have been documented using the breach during 11 winter window surveys since 1992 (Chart 2). Numbers of plovers documented during U. S. Fish and Wildlife winter surveys at Siltcoos Breach has varied from 5 to 38. Incidental observations over past years indicate that plovers may spend a significant portion of the fall and winter months at the breach during some years. Although they may spend a large amount of time at the breach itself it is clear that they also sporadically move between Siltcoos estuary and the breach and even to and from other coastal wintering sites. During the 2007 winter window survey 18 plover that were seen at the breach were seen again on the south Siltcoos River spit within the same hour. During the 2003 winter window survey one plover documented at the breach was found at Sutton Beach, north of the city of Florence the previous day. Use of the breach can last through much of the winter unless winter storms deposit large accumulations of driftwood or make the habitat unsuitable by creating a high cut bank. Most commonly wintering plover flocks will move between the breach and Siltcoos estuary. Potential causes for movement are poorly understood but could be related to changes in availability of food resources, predator avoidance or human disturbance patterns. All use at the Breach has been documented during daylight hours and it is unknown if this location is used at night.

Figure 21 Number of plover observed a Siltcoos Breach 1992 – 2011.

Data Source: USFWS winter window surveys 1992-2011.

While at the Breach site plovers spend time roosting along the high tide wrack line and foraging both on the wet sand near the surf and dry sand areas above the high tide line. Plover are most often located on the western toe of the foredune slope near the high tide line. As a normal part of their behavior plover readily seek out any small depressions in their sand environment and utilize both natural and manmade such as footprints or wheel tracks. It is thought that sand depressions may offer camouflage and protection from wind. When available, plover seem to be especially drawn to using tire tracks, which are almost always abundantly present at the Breach.

Effects on western Snowy Plovers and Critical Habitat

Human activities near plover areas may disturb plovers depending upon their proximity to nesting and roosting areas, frequency of occurrence, and the type of use. Relatively undisturbed, sparsely vegetated areas above the high tide line is a primary constituent element of western snowy plover designated critical habitat. The following impact analysis and determination of effect from disturbance therefore, addresses both western snowy plovers and designated critical habitat.

Human disturbances from activities such as off-road riding, hiking and dog walking within winter roosting areas has the potential to impact snowy plovers by interrupting normal roosting or foraging behavior which in turn could hamper the birds ability to gain fat reserves necessary for winter survival and successful breeding during the following season (Brown et al., 2000b). Rodgers and Smith determined that a zone of about 100 meters should be adequate to buffer foraging and loafing sites for most of the waterbird populations included in the study. While potential for negative effects to plover energetics exist it is unknown if, or to what extent, snowy plovers are impacted from recreational activities at the Siltcoos Breach.

As a precautionary measure the Siltcoos Breach beach access will be seasonally closed and traffic will be rerouted 100 yards to the north under all alternatives. Rerouting the beach access trail from the Coast Guard road to 100 yards north of the CHU 8A boundary would alleviate disturbance effects caused by east-west OHV travel across the breach but plover using the

western toe of the foredune slope near the boundary between U. S. Forest Service and Oregon State Parks and Recreation jurisdictions would still be subject to disturbance by OHV's travelling north/south on the beach.

While it cannot be predicted if plover would or would not be attracted to the new beach access, based on plover response to past instances of foredune modification there is likelihood that they might inhabit a new beach access. If so birds would be vulnerable to disturbance.

Use of the breach by snowy plover has not been thoroughly studied and effects of the proposed actions are not easily determined due to a multitude of uncertainties/unknown factors.

It is unknown if energetics of plovers wintering at the breach are adversely affected enough to cause a decrease in winter survival or nesting success in the following nesting season. The Oregon population and ODNRA population has continued to increase under current OHV use patterns at the Siltcoos breach.

While plovers use depressions in the sand such as wheel tracks for cover when they are available it is unknown if these offer any advantage over naturally occurring depressions. The fact that plover successfully winter in areas closed to vehicle traffic indicates that wheel tracks are not critical to winter survival. Wintering at Siltcoos Breach may be energetically beneficial due to the combination of tire tracks offering protection from wind and minimal contact with hikers and dogs. Plovers are drawn to using OHV wheel tracks within the breach Critical Habitat.

Rerouting of traffic away from the breach may decrease the amount of wheel tracks available to plover. It is unknown if snowy plover will be positively or negatively affected by minimizing traffic in the area.

It is unknown if plovers use the breach after dark. If plover use the segment of beach between the breach and the vehicle closure I-beam to the south as a night roost they may be vulnerable to being struck by OHV traffic. It is unknown if any direct mortality from OHV's has occurred at the breach.

All known snowy plover (plover) nesting areas and Critical Habitat designated for nesting are located outside the proposed project area. No new designated routes are proposed to be closer to nesting areas than already existing designated routes, therefore there will be no direct or indirect effects to plover nesting habitat.

Cumulative Effects-National Environmental Policy Act (NEPA)

There are no direct or indirect effects from this project on snowy plover habitat; therefore there are no cumulative effects (40 CFR 1508.7)

Cumulative Effects-Endangered Species Act (ESA)

Cumulative effects are those effects of future state, county or private actions, not involving federal actions, that are reasonably certain to occur within the action area of a federal action subject to consultation (50 CFR 402.02). Cumulative effects analysis of foreseeable state and private actions provide greater insight to understanding the current environmental factors and likely trends that might affect a species.

There are no private lands within the action area but there are state lands. State lands directly adjacent to the action area are managed under the Habitat Conservation Plan for the Western Snowy Plover (HCP) that provides guidance and standards for management of the ocean shore and western snowy plover habitats below mean high tide (ICF International 2010). The HCP did

not address wintering habitat at the Siltcoos breach and the State has no current proposals to close this area to OHV's during the winter, thus there will be no measurable change in winter use of the beach adjacent to the Siltcoos breach by OHV's.

Management Requirements Applied to All Project Activities

- To avoid disturbance impacts to wintering western snowy plover, seasonally close the spur trail from the Coast Guard road west over the Siltcoos Breach with a physical barrier on the east side of the foredune from September 16 through March 14 while providing an alternate beach access 100 yards to the north of Siltcoos Breach.
- Protect all bald eagle nest sites, including existing and newly discovered active and inactive sites using recommendations listed in the National Bald Eagle Management Guidelines, USFWS May 2007.

Sensitive Species

No suitable habitat exists in the project area for Oregon red tree vole, North American wolverine, Pacific fisher, foothill yellow-legged frog, Newcomb's littorine snail, Puget Oregonian, Evening fieldslug, Western ridged mussel, Pacific walker, Roth's blind ground beetle, Siuslaw sand tiger beetle, Johnson's hairstreak, Haddock's rhyacophilan caddisfly, and the caddisfly *Namamyia plutonis*. Thus, none of the proposed alternatives would have any effect on these species or their habitats.

California brown pelican (*Pelecanus occidentalis californicus*)

This species commonly rests on open sand beaches and in estuaries within the ODNRA. Although it may fly over beach foredunes habitat is generally not present within the project area. None of the proposed alternatives would have any effect on this species or its habitat.

Aleutian Canada goose (*Branta hutchinsii leucopereia*)

This species, one of five subspecies of Canada geese, winters primarily in pastures and grain fields along the coasts of Oregon and northern California, and in California's Central Valley. Although this subspecies is known to winter primarily along the coast in the Tillamook area, considerably north of the project area, inland lakes and flooded deflation plains do exist within the project area. The 134.2 acre deflation plain wetland, A16, within the Middle Riding Area is the only area of potential Aleutian Canada Goose habitat that may be impacted from the proposed alternatives. This wetland is a mosaic of several different wetland types ranging from meadow to tall brush. Only fragmented parts would be potentially suitable to Aleutian Canada goose. Under alternatives 1 – 3 one route would be designated within A16, route 8, and all other user made routes would be closed. No adverse impacts to this species would be expected under these alternatives as little potential habitat would be altered and low likelihood of species occurrence. Under alternatives 4 and 5 Area A16 would be reallocated from MA 10 (C) to MA 10 (B). This area is currently used as if it is 10 (B) and under alternatives 4 and 5 use of the deflation plain would continue as is. Deflation plain vegetation would be expected to become further degraded and fragmented over time due to continued OHV use throughout the area. It is unlikely that this area would be used by Aleutian Canada geese because the areas of wetland meadow are scattered throughout the area and most are relatively small. No alternatives would impact any of the inland lakes within the three riding areas. Because of the small and fragmented areas of habitat and low likelihood of species occurrence no conflict with this species

is anticipated. None of the proposed alternatives would have any effect on this species or its habitat.

American Peregrine Falcon (*Falco peregrinus anatum*)

Although once rare on the Oregon Coast, the peregrine falcon inhabits coastal areas year round, and can frequently be seen on the Oregon Dunes National Recreation Area. Decades of widespread use of DDT lead to reproductive failure and subsequent Federal listing of this species. Due to a ban on the use of DDT and other chlorinated hydrocarbons in 1972, as well as an intensive captive breeding and rearing program, populations rebounded enough to allow delisting of the species in 1999.

In Oregon, peregrines occur as resident and migratory populations. Adults remain in the vicinity of nest sites throughout the year at Pacific Northwest locales below approximately 4,000 ft. elevation. Peregrine falcons typically nest on cliffs greater than 75 ft. in height or structural features of bridges, and within 1 mi. of some form of water. Their primary prey item is birds (Henny and Pagel, 2003).

The project area does not contain any nesting habitat for this species. Peregrine falcon utilize all open habitats within the project area such as the ocean beach, foredune, eastern edge of the deflation plain and adjacent open sand areas for opportunistic hunting. Under Alternative 1, no additional routes would be designated and no areas would be reallocated from MA 10 (C) to MA 10 (B) therefore this alternative is not expected to affect peregrine falcon populations or their habitat. Designation of routes under Alternatives 2, 3, 4 and 5 is not expected to affect peregrine falcon populations or their habitat. Reallocation of area A14 in Alternative 5 and A16 in Alternatives 4 and 5 from MA 10 (C) to MA 10 (B) has the potential to disperse peregrine falcon prey species such as migrating flocks of shorebirds and waterfowl from the open wetland portions of these areas. Effects to this species are expected not measureable and are not expected to cause a loss of viability to the population or species.

Northern Bald Eagle (*Haliaeetus leucocephalus*)

Bald eagles are usually found near coastlines, rivers, large lakes or streams that support an adequate food supply. Their primary prey item is fish. They exhibit strong mate fidelity and return to the same nest to rear young year after year (Oregon Wildlife Explorer 2010). Nests are built in large trees with an open structure and large limbs. Although the widespread use of DDT lead to reproductive failure and subsequent Federal listing of this species, the bald eagle was de-listed throughout most of its range in 2007. Current threats to the bald eagle include disruption, destruction, or obstruction of roosting and forage areas (U.S. Fish and Wildlife Service 2010).

There are no known bald eagle nests within the project area, however suitable habitat is present. The closest known bald eagle nest site to the project area is approximately 0.75 miles south of the North Riding Area. This nest site has been active since 2001 and fledged young most years until formal monitoring ceased in 2006.

Most eagle foraging is expected to occur in estuaries, along rivers and in the ocean surf, outside of the proposed project boundary. All alternatives have the potential to temporarily disrupt individuals, but would not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species. Eagles living near the proposed project area are likely accustomed to disturbance from OHV riding. Background noise levels experienced by the eagles

nesting to the south of the north riding area are expected to remain stable or decrease. None of the proposed alternatives would have any effect on this species or its habitat.

Purple Martin (*progne subis*)

Purple martins feed on flying insects in open habitats such as water bodies, marshes, clearcuts, fields and high above the canopy of forests. They nest in natural and artificial cavities quite often over open water although this is not an obligate requirement (Horvath 2003). There are active purple martin colonies within approximately one mile from the North and South Riding Areas. The status of this species within the project area is unknown however habitat is present. None of the proposed alternatives will remove habitat used by this species. Alternatives 1-5 would have no effect on purple martins or their habitat.

Fringed Myotis (*Myotis thysanoides*)

Fringed myotis roost in natural (i.e. rock crevices, cliff faces, caves and mines) and artificial (buildings and bridges) crevices (Maser et. al. 1981). Primarily nocturnal in their activities, they feed on a variety of invertebrates, primarily beetles and moths. Foraging primarily occurs in riparian forest areas. No rock crevices, cliff faces, caves or mines are present in the proposed project area. None of the existing buildings will be affected by proposed activities. None of the proposed alternatives will impact foraging habitat. Therefore Alternatives 1- 5 are not expected to affect fringed myotis populations or their habitat.

Pacific Pond Turtle (*Actinemys marmorata*)

This species account is taken from Rosenberg et al. (2009). The western pond turtle is associated with a variety of aquatic habitats, both permanent and intermittent, where emergent basking sites such as logs, mud banks, or tule mats are available. In streams and rivers, western pond turtles most frequently occupy low-velocity waters and particularly deep pools. A high density of emergent vegetation that contributes to a high density of invertebrate prey appears to be selected by turtles in many aquatic habitats. Pond turtles use upland areas to disperse, nest, overwinter, and aestivate. Little is known about the dispersal of western pond turtles. Although they may move overland between drainages, genetic analyses suggest that most movements occur within drainages. Most studies using telemetry show pond turtles overwinter within 250 m of water. Terrestrial over-wintering sites include a much broader array of vegetation structure than nest sites; shrubby, open, and forested environments have all been used. Nesting habitat is usually in areas of sparse vegetation consisting of grass and forbs, with compact soils. Nesting habitat is also characterized by good solar exposure with little or no tree canopy cover that would shade the nesting site. Although soil composition may vary, almost all nests occur within 200 m of the turtles' aquatic habitat.

Primary threats to the conservation of western pond turtles in Oregon include loss of habitat, elevated nest and hatchling predation, road mortality, competition from introduced species, unauthorized collection and release and recreational disturbance.

On May 17, 2011 a western pond turtle was documented on the Tenmile Sand Road (already a designated OHV route) on the northern boundary of the South Riding Area. This individual likely came from the Tenmile Lake/Creek system that pond turtles are known to inhabit. There are also two records from the early 1990's of probable pond turtle tracks near the deflation ponds just to the north of the South Riding Area near Tenmile Creek estuary (Stern et. al. 1994).

Western pond turtle have also been documented in Siltcoos Lake, Siltcoos estuary, respectively east and south of the North Riding Area, the Umpqua River system north of the Middle Riding Area and in Hauser/North Slough of Coos Bay on the east, directly adjacent to the South Riding Area. All alternatives propose closure of user made trails to further curtail unauthorized use in sensitive wetland areas, potentially benefitting western pond turtles. No habitat for pond turtles will be removed or modified. Alternatives 1-5 have the potential to impact individual northwestern pond turtles, but would not contribute to a trend towards federal listing or cause a loss of viability to the population or species.

Oregon Plant Bug (*Lygus oregonae*)

The Oregon plant bug is host-specific and is known to only live on two host plants *Ambrosia chamissonis* (Less.) E. Greene, or Beach-bur and *Abronia latifolia*, yellow sand-verbena. Beach-bur grows only on sand dunes near the beach, usually just back of the foremost dune. Yellow sand-verbena grows in the loose, shifting beach sand of foredunes along the coast. The Oregon plant bug has been found from Long Beach, Washington south into Oregon at Neskowin, Newport, Waldport and Myrtle Creek. During 2009 seven sites on the ODNRA were surveyed for host plants of the Oregon Plant Bug by the Xerces Society. No Oregon plant bug host plants were seen at any of the ODNRA survey sites. None of the survey sites were within the project area. Although one or both host plants were present at 13 of the 49 sites surveyed along the Oregon coast, the Oregon plant bug was only found at a single site where large contiguous patches of *Ambrosia chamissonis* were present (Mazzacano, 2010). No host plants for the Oregon plant bug were located by the forest botanist during field reviews of the project area (Stein, 2012). This species is threatened by conversion and fragmentation of tidal and floodplain wetlands, loss and degradation of sand dune systems and riparian areas, and encroachment of non-native vegetation. Alternative 1 is not expected to affect the Oregon plant bug as all user made trails not designated on the MVUM would be closed, reducing the possibility of negative impacts to the Oregon plant bug or its host plants, Beach-bur and yellow sand-verbena, should they be present. Under Alternative 2 the proposed management reallocation of the foredune area A2 in the North Riding Area is not expected to impact the Oregon plant bug because it is unlikely that its host plants are present in this area due to the low quality of the habitat. Closures of user made trails under Alternative 3 are not expected to affect the Oregon plant bug or its host plants, Beach-bur and yellow sand-verbena should they be present. Alternatives 4 and 5 propose management reallocation of foredune and deflation plain areas A2 in North Riding Area and A16 in the Middle Riding Area. Reallocation of area A2 is not expected to impact the Oregon plant bug as it is highly unlikely that its host plants are present. The proposed reallocation of area A16 is not expected to impact the Oregon Plant bug as it is unlikely that its host plants are present within the area.

Western Bumble Bee (*Bombus occidentalis*)

Bumblebees will visit a range of different plant species and are important generalist pollinators of a wide variety of flowering plants and crops. Although bumblebees do not depend on a single type of flower, some plants rely solely on bumblebees for pollination. In addition, native bees, such as bumblebees are adapted to local conditions. Threats to Western bumble bees include commercial bumblebee rearing, habitat alteration, insecticides, invasive plants and insects, global climate change. Prior to 1998 Western bumble bees were common throughout their range.

Since 1998 populations have experienced a drastic decline, having largely disappeared in many parts of its former range, including Oregon. Alternatives 1-5 all propose closure of a large proportion of unauthorized user created routes which may lessen any negative impacts to this species or its habitat if it occurs within the proposed project area. Reallocations of land from MA 10 (C) to MA 10 (B) in Alternatives 2, 4 and 5 have the potential to cause further loss of some flowering plant species but are not expected to cause a loss of viability to the population or species.

Hoary Elfin (*Callophrys polios maritime*)

The hoary elfin is associated with kinnikinnick on coastal bluffs and sand dunes. Kinnikinnick is relatively common throughout the proposed project area at the edge of places vegetated with woody plants. It is also relatively common throughout the ODNRA. Closures of user created routes described in Alternatives 1 – 5 are expected to reduce impacts to areas where kinnikinnick is present. Areas of kinnikinnick are expected to remain stable within the project area therefore no impacts to this species are expected.

Insular Blue Butterfly (*Plebejus saepiolus littoralis*)

The Insular Blue Butterfly is associated with stream edges, bogs, wet meadows or moist depressions in the lee of sand dunes but can be found along drier sites that have blooming clovers such as roadsides and open meadows. Eggs are laid in clover flowers such as *Trifolium monanthum*, *T. longipes* and *T. wormskioldii*. The species overwinters as a caterpillar in flower head of the host clover. *Trifolium wormskioldii* is present within the project area but effects to clover species such as *trifolium wormskioldii* are expected to be minor. Impacts to insular blue butterfly are not measureable and if it is present and would not contribute to a trend towards federal listing or cause a loss of viability to the population or species.

C. Other Rare or Uncommon Species (Strategic Species)

California floater, salamander slug, marsh walker, broadwhorl tightcoil, American grassbug, foliaceous lace bug, valley silverspot, *Lepania cascada*—a caddisfly, *Moselyana comosa*—a caddisfly

The alternatives were evaluated for their effects to rare and uncommon species identified in the Regional Forester's list of "Federally Threatened, Endangered and Proposed Species and Sensitive and Strategic Species" dated December 9, 2011.

Alternatives 1-5 would not affect any rare or uncommon (strategic) species, because no habitat for the above listed species exists within the project area.

E. Survey and Manage

On December 17, 2009, the U.S. District Court for the Western District of Washington issued an order in *Conservation Northwest, et al. v. Sherman, et al.*, No. 08-1067-JCC (W.D. Wash.), granting Plaintiffs' motion for partial summary judgment and finding NEPA violations in the Final Supplemental to the 2004 Supplemental Environmental Impact Statement to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines (USDA and USDI, June 2007). In response, parties entered into settlement negotiations in April 2010, and the Court filed approval of the resulting Settlement Agreement on July 6, 2011. On April 25,

2013 the Ninth Circuit reversed the Western District Court of Washington at Seattle's decision in *Conservation Northwest v. Sherman*, 715 F.3d 1181, 1189 (9th Cir. 2013) order approving the 2011 Consent Decree. On February 18, 2014 the District Court ruled that Agencies may proceed developing projects under the terms of the 2011 Consent Decree for projects that fall within one or more of the following categories of projects: (1) projects in which any Survey and Manage pre-disturbance survey(s) has been initiated (defined as at least one occurrence of actual in-the-field surveying undertaken according to applicable protocol) in reliance upon the Consent Decree on or before April 25, 2013; (2) projects, at any stage of project planning, in which any known site(s) (as defined by the 2001 Record of Decision) has been identified and has had known site-management recommendations for that particular species applied to the project in reliance upon the Consent Decree on or before April 25, 2013, and (3) projects, at any stage of project planning, that the Agencies designed to be consistent with one or more of the new exemptions contained in the Consent Decree on or before April 25, 2013.

Survey and Manage pre-disturbance surveys had been initiated prior to April 25, 2013 and therefore the Oregon Dunes NRA Designated Routes Project applies the Survey and Manage species list in the 2011 Settlement Agreement and thus meets the provisions of the 2001 Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines, as modified by the 2011 Settlement Agreement.

The project area includes a small amount of mature forest habitat greater than 80 years old which does have potential for habitat for the Red Tree Vole, (*Arborimus longicaudus*). However, none of the action alternatives propose to disturb habitat or modify by constructing trails or removing trees. Therefore, surveys are not required.

Two survey and manage mollusk species occur on the Siuslaw National Forest. The project area is outside the range of the Puget Oregonian (*Cryptomastix devia*). The project is within the range of the Evening Fieldslug (*Deroceras hesperium*), however no suitable habitat exists within the project area. Therefore, it is determined that the project would not have an effect on survey and manage species.

Table 43. Survey and Manage species

Species	Survey & Manage Category	Survey Triggers			Survey Results			Site Mgmt
		Within Range of the Species?	Project Activities Occur in Suitable habitat?	Project may negatively impact species/habitat?	Surveys Required?	Survey Date	Sites Known or Found?	
Vertebrates								
Red Tree Vole (<i>Arborimus longicaudus</i>)	C	Yes	No	No	No ¹	N/A ²	No	N/A ²
Mollusks								
Puget Oregonian (<i>Cryptomastix devia</i>)	A	No ³	No	No	No	N/A ²	No	N/A ²
Evening Fieldslug (<i>Deroceras hesperium</i>)	B ⁴	Yes	No	No	No ⁴	N/A ²	No	N/A ²
1 = Surveys are not required when there are no habitat disturbing activities. Surveys are not required in stands under 80 years or those stands identified as unsuitable RTV habitat. Refer to the Red Tree Vole 2.1 and 3.0 Protocols (USDA 2002, 2012) for suitable habitat definition. 2 = Not applicable. 3 = Species range not within ODNRA. 4 = Based on direction in the ROD, equivalent-effort pre-disturbance surveys are required for these mollusk species in suitable habitat. Buffer protection widths may be employed if suitable habitat exists in lieu of survey effort.								

E. Wildlife Management Indicator Species

The Siuslaw National Forest Land and Resource Management Plan Final Environmental Impact Statement (FEIS) (USFS 1990) identified 11 terrestrial and 1 aquatic management indicator species. The EIS stated the following: “Management indicator species were selected because a change in their population, in response to management activities, is believed to represent changes in a larger group of species. Selection of management indicator species was based on the following categories as specified in 36 CFR 219.19:”

1. Endangered and threatened plant and animal species identified on state and federal lists for the planning area.
2. Species with special habitat requirements that may be influenced significantly by planned management programs.
3. Species commonly hunted, fished, or trapped.
4. Non-game species of special interest.

Additional species selected because their population changes are believed to indicate the effects of management activities on other species of selected major biological communities or on water quality.

Table 3 summarizes the information on the 11 terrestrial management indicator species identified in the FEIS. The Record of Decision (ROD) for the Siuslaw National Forest Land and Resource Management Plan Final Environmental Impact Statement did not change the management indicator species list and there have been no subsequent forest plan amendments that changed the list. On the date the Record of Decision was signed (March 7, 1990), there were five species listed on the Endangered Species Act of 1973 as amended (ESA) including four species that were previously identified as endangered under the Endangered Species Preservation Act of 1966. Since 1990, four of the listed species are considered fully recovered and have been removed from the endangered species list. Two management indicator species were added to the endangered species list after the ROD was signed. Thus the table reflects both the basis for why the species was included as a management indicator species at the time of the final EIS as well as its current legal status under the Endangered Species Act.

Four of the management indicator species on the Siuslaw are primarily associated with coastal habitats (deflation plain wetlands, beach/estuary environments, coastal bluffs/cliffs). Three of the four (Aleutian Canada goose, brown pelican and peregrine falcon) are considered fully recovered and have been removed from the endangered species list. Their primary habitats, and thus the basis for their decline, recovery objectives and ultimate recovery were associated with habitats and populations not associated with lands administered by the Siuslaw National Forest. Management for the Aleutian Goose (nests in the Aleutian's) and brown pelican (nests in southern California-northern Mexico) was primarily to insure protection of potential habitat that may be used in the Oregon Dunes National Recreation Area during the non-breeding season for these two species. Seasonal closures are used at the Cascade Head Scenic Research Area to protect the known nesting activities of one peregrine pair using the site.

In Oregon, the Aleutian Canada goose winters primarily on the pastures of two dairy farms near Pacific City and on privately owned pastures on the south end of Tillamook Bay. This species is not known to winter on Siuslaw National Forest lands. During migration, brief and incidental use by Aleutian Canada geese may occur within the project area. Effects to potential migratory habitat for Alternatives 1-5, as described in the sensitive species discussion, are not measureable and will not contribute to a negative trend in viability on the Siuslaw National Forest for the Aleutian Canada goose.

Proposed project actions for Alternatives 1-5 will have no impact on California brown pelicans or their habitat and will not contribute to a negative trend in viability on the Siuslaw National Forest.

Peregrine falcon nesting habitat does not occur within the proposed project area. Area reallocation A14 in Alternative 5 and A16 in Alternatives 4 and 5 effects are not measureable to peregrine falcon foraging habitat and would not contribute to a negative trend in viability on the Siuslaw National Forest for peregrine falcon.

The Oregon Dunes National Recreation Area Management Plan Environmental Impact Statement and Record of Decision allocated areas MA 10(e) as well as standards and guidelines specific to the protection and recovery of Western Snowy plovers. The entire Oregon Dunes

NRA (MA 10) covers about 27,000 acres, with MA 10e representing about 1,010 acres. Proposed project actions for Alternatives 1-5 would have no impact on snowy plover nesting habitat. Alternatives 1-5 could affect disturbance levels for snowy plover but would not contribute to a negative trend in viability on the Siuslaw National Forest.

The Oregon silverspot butterfly currently has a very limited distribution throughout its range as well as on the Forest. The ROD for the Forest Plan provided a specific management area (MA 1-1926 acres) associated with the protection this species at four sites; Rock Creek-Big Creek, Bray's Point, Mt. Hebo and Fairview Mountain. Except for Fairview, the sites identified have small native populations. Fairview was designated as a site for reintroduction of the species; unfortunately that effort failed and has been deferred while other recovery efforts are being undertaken. No habitat for the Oregon silverspot butterfly exists within the ODNRA, therefore the proposed project will not contribute to a negative trend in viability for this species.

At the time of the Forest Plan FEIS, there were 7 existing bald eagle nest sites. The ROD allocated those 7 sites plus 16 additional sites as their own management area (MA 4-2502 acres) to facilitate meeting recovery numbers for the species. Each management area protects about 110 acres of habitat around the nest sites. The location of the 16 sites were established based on potential habitat, however if a new site on the forest became established, it replaced one of the 16 projected sites. Though bald eagles have been removed from protection under the Endangered Species Act, eagles and their habitat remain protected under the Bald Eagle and Golden Eagle Protection Act. No bald eagle nest sites are known within the project area and Alternatives 1-5 do not propose modification or removal of mature and/or older forest stands or snags therefore this project will have no impact to habitat or viability for this species.

In an attempt to reduce the effect of continued regeneration harvest activities on northern spotted owl habitat and populations, the Forest Plan FEIS and ROD allocated about 46,512 acres to MA 3 (Spotted Owl Habitat Areas). Additional protection was expected from the three wilderness areas (MA 12-22,186 acres), two undeveloped areas (MA 11-7,298 acres) and three research natural areas (MA 13 1,408 acres).

The majority of the forest was identified as being in MA 15 Timber/Wildlife/Fish with the primary emphasis on producing timber while maintaining and or enhancing fish and wildlife habitat. The 467,361 acres in this allocation included about 340,344 acres considered suitable for timber harvest and about 127,000 that were considered unsuitable for timber harvest. Additional harvest was planned from MA 14 (33,666 acres) which was equally split between suitable and unsuitable for timber harvest. At the time about 193,400 acres of the 357,200 acres considered suitable were over 80 years of age. Planned harvest included about 5,200 acres of regeneration harvest and about 600 acres of commercial thinning per year.

The management objectives, standards and guidelines and associated monitoring questions for pileated wood peckers, marten, primary cavity nesters and elk were developed in concert with the anticipated harvest levels.

Considering the land allocations currently in place, less than 5% of the Siuslaw land base is in an allocation that would allow for regeneration harvest activities. No timber sales sold since 1991 on the Siuslaw have included regeneration harvest of mature conifer habitat. Thus the amount of mature habitat for northern spotted owls, pileated woodpeckers, and marten, has not changed since the Northwest Forest Plan was adopted. Snags were created in units within 5 years after

sales with regeneration harvest were closed. The loss of snags due to regeneration harvest activities has also been reduced. Overall as stands mature, an increase in snags is anticipated in natural stands. Early seral habitat conditions (preferred by elk for forage) from past regeneration harvest have been lost due to the maturation of plantations past 15 years of age. The vast majority of plantations are over 20 years of age.

The Northwest Forest Plan, as well as Siuslaw National Forest Plan management objectives, standards and guidelines and monitoring set in place to maintain healthy and viable populations of northern spotted owl, marten, pileated woodpecker and primary cavity excavators was primarily tied to the Forest's Late Successional Reserve areas which are outside of the ODNRA. Alternatives 1-5 do not propose modification or removal of mature and older forest, medium-large snags or defective trees therefore this project activities will have no impact to habitat or viability for these species.

Alternatives 1-5 do not propose modification or removal of early seral habitat, meadows, thermal or hiding cover for Roosevelt elk therefore project activities will have no impact on habitat or viability for this species.

Table 44. Siuslaw Management Indicator Species (MIS)

Species	Forest Plan EIS (Table III-15, pg III-68) Habitat Feature	Specific Habitat on Siuslaw	Nature Serve	State Status	Federal Status	Species Present Within Project Area
Aleutian Canada goose	T&E habitat	Inland lakes and large expanses of flooded deflation plain on the Oregon Dunes NRA for potential migratory/transitory habitat-little if any suitable feeding habitat.	G5T4S2N		Listed Endangered 3/11/1967 Reclassified Threatened 1/11/1991 Delisted 3/20/2001	Yes
Bald eagle	T&E habitat	Multi-storied stands with old-growth components near water bodies which support an adequate food supply. Includes large conifer trees or snags(50-90 inches in diameter)	G5S4BSN	Threatened	Listed Endangered 3/11/1967 Reclassified Threatened 8/11/1995 Delisted 8/8/2007	Yes

Species	Forest Plan EIS (Table III-15, pg III-68) Habitat Feature	Specific Habitat on Siuslaw	Nature Serve	State Status	Federal Status	Species Present Within Project Area
Brown pelican	T&E habitat	Resting/roosting in estuaries and along beaches on the Oregon Dunes NRA.	G4T3S2N	Endangered	Listed Endangered 6/2/1970 Delisted 12/17/2009	Yes
Marten	Mature conifer (down logs)	Mature and older age stands of timber	G5S3S4	Sensitive/Vulnerable		Yes
Northern spotted owl	Old growth & mature conifer	Old growth and mature conifer habitat (large trees, multi-storied, large snags, down logs)	G3T3S3	Threatened	Listed Threatened 6/26/1990	No
Silverspot Butterfly	T&E habitat	Open coastal grasslands, including ocean spray meadows	G5T1S1		Listed Threatened 7/2/1980	No
Peregrine falcon	T&E habitat	Rocky cliffs with ledges for nesting near foraging areas	G4T4S2B	Sensitive/Vulnerable	Listed Endangered 6/2/1970 Delisted 2/25/1999	Yes
Pileated woodpecker	Mature conifer (large snags, down logs)	Large snags, defective trees, down material.	G5S4	Sensitive/Vulnerable		Yes
Primary cavity excavators	Snags ($\geq 20''$ dbh)	Dead and defective trees throughout the forest types.				Yes
Roosevelt Elk	Mix of forage and cover areas	Mosaic of foraging areas close to thermal and hiding cover.	G5			Yes
Western Snowy Plover	Open sand near estuaries	Sandy areas virtually devoid of vegetation, driftwood, and other structure above high tide adjacent to small estuaries as streams enter the ocean.	G4T3S3B	Sensitive/Critical	Listed Threatened 3/5/1993	Yes

E. Landbird Assessment

Landbirds including migrant and resident species, are those that generally use terrestrial and wetland habitats. At least 247 bird species are known to be associated with the ODNRA and its offshore waters including 25 oceanic, 54 shore or wading, 39 waterfowl, 21 raptors and 108 songbird species (Pinto et. al. 1972). A large portion of these species utilize habitats within the project area either year-round, during breeding or wintering or during migration. Virtually all habitat types found on the ODNRA can be found within the project areas including many types of wetland, shrub, dune, and forest communities. Landbirds using two general habitat types, deflation plain wetlands and transition forest, have the potential to be impacted by proposed project alternatives. Some of the bird species that inhabit transition forests on the ODNRA include red-tailed hawk pileated woodpecker, stellers's jay, bushtit and dark-eyed junco.

The Oregon coast provides breeding, wintering and migratory habitat for many birds using the Pacific Flyway. Deflation plains in the ODNRA are a key area for migrating shorebirds. Deflation plain wetlands as well as the many other lowland marsh, ponds, and lakes found in the dunes have a high value for neotropical and other migratory birds. Wetlands on the ODNRA are important for birds and other wildlife because Federal lands provide some of the few areas left on the Oregon Coast that remain largely undeveloped (Oregon Wetlands Joint Venture a, b 1994). Rufus hummingbird, American robin and yellow-rumped warbler, northern harrier, savannah sparrow and white crowned sparrow are some of the bird species that occupy deflation plain wetlands within the project area.

Transition forest includes a mixture of tree species. Most often shore pine is dominant but many stands Sitka spruce, Douglas-fir, hemlock and western red cedar are also present (Pinto et. al. 1972) Some of the bird species that inhabit transition forests on the ODNRA include red-tailed hawk, pileated woodpecker, stellers's jay, varied thrush, olive sided flycatcher, purple finch, bushtit and dark-eyed junco.

The U. S. Fish and Wildlife Service report *Birds of Conservation Concern 2008* identifies migratory and non-migratory bird species that are of the highest conservation priority and that without additional conservation actions, are likely to become candidates for federal listing under the Endangered Species Act of 1973. Within the report species are listed by geographic units or "Bird Conservation Region". The project area is within Bird Conservation Region (BCR) 5 which includes the northwest coast of California, western Oregon and Washington, coastal British Columbia and the south and southwest coast of Alaska. Of the 32 species listed for BCR 5, three (rufous hummingbird, olive-sided flycatcher and purple finch) are likely to breed within the project area. Several other species on the list may occur only on the ocean, ocean beach or estuaries and will not be affected by any of the proposed activities. These species include western grebe, pelagic cormorant, whimbrel, marbled godwit, red knot and Caspian tern. Effects to bald eagle and peregrine falcon (also included on the BCR 5 list) were discussed previously in this report.

Alternative 1 – OHV routes will be designated but there will be no changes in management areas. No effects to land birds are expected. Closure of user made trails is expected to reduce disturbance to landbirds.

Alternative 2 (Proposed Action)– Areas proposed for reallocation from MA 10(C) to MA 10(B) are already significantly degraded, experience high disturbance, and have only scattered remnants of native vegetation. Low numbers of birds are expected to inhabit these areas currently. Effects to landbirds are not measureable. Closure of user made trails is expected to reduce disturbance and benefit landbirds.

Alternative 3 – Closures of user made trails are expected to reduce disturbance and benefit landbirds.

Alternative 4 – Areas proposed for reallocation of management in the north and south riding areas are already significantly degraded, experience high disturbance and have only scattered remnants of native vegetation. Effects to land birds in these areas are expected to be minimal. Reallocation of management for area A15 will have no effect to landbirds. Proposed reallocation area A16 is a 132 acre area of deflation plain wetland. This area already receives moderate use by OHV recreationists but still has many intact portions of native vegetation and is likely still supports use by nesting, migrating and wintering birds. The proposed change in management to 10 (B) is likely to cause further degradation of native vegetation by OHV's over time, making this area less suitable for landbirds. Closures of user made trails are expected to reduce disturbance, and benefit landbirds. The rufus hummingbird is listed as a bird of conservation concern in northern pacific forests of the United States (U.S. Fish and Wildlife 2008). This species could experience increased levels of noise and/or physical disruption by increased OHV recreation due to management reallocation of area A16.

Modified Alternative 4 (Preferred Alternative)- Areas proposed for reallocation of management in the north and south riding areas are already significantly degraded, experience high disturbance and have only scattered remnants of native vegetation. Effects to land birds in these areas are expected to be minimal. Reallocation of management for area A15 will have no effect to landbirds. Proposed reallocation area A16 is a 132 acre area of deflation plain wetland. This area already receives moderate use by OHV recreationists but still has many intact portions of native vegetation and is likely still supports use by nesting, migrating and wintering birds. The proposed change in management to 10 (B) is likely to cause further degradation of native vegetation by OHV's over time, making this area less suitable for landbirds. Closures of user made trails are expected to reduce disturbance, and benefit landbirds. The rufus hummingbird is listed as a bird of conservation concern in northern pacific forests of the United States (U.S. Fish and Wildlife 2008). This species could experience increased levels of noise and/or physical disruption by increased OHV recreation due to management reallocation of area A16.

Alternative 5 – Effects to landbirds would be the same as in Alternative 4 for the middle and southern riding areas. Additional upland management reallocation areas proposed in the north riding area for Alternative 5 (areas A11, A12, A13) would allow riders to forge new trails in areas where there currently aren't any, potentially exposing landbirds to increased levels of disturbance. These areas are already providing lower quality habitat due to a high incidence of noxious weeds and low plant species diversity therefore affects to landbirds (including rufous hummingbird, olive-sided flycatcher and purple finch) from changing management of these areas is expected to be minimal.

Area **A14** is a 416 acre tract of deflation plain wetland that floods in the winter. The interior of this tract is dominated by shore pine, willow and other shrub species including evergreen huckleberry, salal and waxmyrtle. The herbaceous layer is dominated by slough sedge and

Pacific silverweed. Wetland meadow borders the eastern edge. Reallocation of this tract to MA 10(B) is likely to expose landbirds (including the rufous hummingbird and purple finch) to an increase in noise disturbance and/or physical disruption by OHV recreation. Closures of user made trails proposed under this alternative are expected to reduce disturbance, and benefit landbirds.

All alternatives propose closure of some proportion (from nearly 60% to 100%) of user made trails, which would benefit land bird species by encountering fewer disturbances of from OHV recreation.

Fisheries (Fish Biologist, USFS, 2012c)

For further details and discussion of the fisheries of the project area, please see the specialist report pertaining to these topics (USFS, 2012c).

North Riding Area – The north riding area contains two named lakes (Cleawox and Bear) and several unnamed ponds, many of which are seasonal in nature. The outlet to Cleawox Lake is located in the northern portion of this riding area. Flow from the outlet is seasonal in nature and the stream is dry in late summer and early fall. The stream flows northwest from the outlet, first through trees, and then along the dune/tree margin to “Goose Pasture flats”, a low, flat expanse of sand south of Goose Pasture Staging Area and east of the deflation plain. At “Goose Pasture flats” the creek spreads out across the sand flat, becoming quite wide and shallow. No channel is present at this point and the unconfined flow can spread across about a ¼+ mile width of the flat before entering the vegetated deflation to the west. Water entering the deflation plain north of the Goose Pasture beach designated route flows north under the South Jetty road and eventually into the Siuslaw River. Water that enters the deflation plain south of the Goose Pasture beach designated route flows directly into the Pacific Ocean.

Water collecting in the southern portion of the deflation plain south of Chapman’s designated route flows south through slough sedge in a mostly unchannelized condition until crossing under the Siltcoos Beach access road and into the Siltcoos River just prior to the river’s entry into the ocean. Flow is seasonal and only the last the last ¼ mile of this drainageway is channelized.

The Siltcoos River forms a portion of the southern boundary of the riding area, including portions of MA 10 (C) and MA 10 (B) management areas. A small dam regulates flow in the river along with the elevation of water in Siltcoos Lake. The dam also prevents saltwater intrusions into the lake during extreme summer high tides when freshwater outflow is at its least. The dam has a fish ladder.

Middle Riding Area – The middle riding area contains no permanent bodies of water. Deflation plains are seasonally flooded. No fish populations are known to occur.

Southern Riding Area – The southern riding area contains several large, shallow lakes that can become seasonally connected during high-water years. Saunders and Clear Lakes drain north through Saunders Creek to Tenmile Creek; Butterfield and Beale Lakes drain south and east through an unnamed intermittent stream to the North Slough; and Snag, Sandpoint, Spirit, and Horsfall Lakes drain south via unchannelized flow to Coos Bay.

Lakes in the southern riding area can vary greatly in size depending on the season and annual rainfall. In particular, the Horsfall/Spirit Lake complex can expand to the southeast and

seasonally inundate areas of MA 10 (B) and MA 10 (C) north of the Old Bark Road Staging Area.

Fish Species Present

Fish species present within the three riding areas include predominately introduced warm-water species present in lakes and native cold-water species in streams. Lake species include brown bullhead *Ictalurus nebulosus*, cutthroat trout *O. clarki*, hatchery rainbow trout *O. mykiss*, generic crappie *Pomoxis sp.*, black crappie *Pomoxis nigromaculatus*, warmouth *Lepomis gulosus*, bluegill *L. macrochirus*, pumpkinseed *L. gibbosus*, largemouth bass *Micropterus salmoides*, yellow perch *Perca flavescens*, three-spine stickleback *Gasterosteus aculeatus*, golden shiner *Notemigonus crysoleucas*, and generic sculpins *Cottus sp.* Table 2 displays distribution of gamefish species.

Because of its ephemeral nature and the requirement for a source population to resupply the stream with fish every year, the outlet to Cleawox Lake is expected to contain the same species as are present within the lake. This includes hatchery rainbow trout, black crappie, bluegill, juvenile largemouth, yellow perch, three-spine stickleback, golden shiner, and sculpins. The southern portion of the deflation plan of the north riding area also contains fish on a seasonal basis. These include stickleback and sculpins. Coho salmon have also been observed on the upstream side of the culverts of the Siltcoos Beach access road, an area that is not within the MA 10 (C) boundary. These fish have undoubtedly temporarily strayed from the Siltcoos River and quickly returned there to continue their migration to spawning areas upstream of Siltcoos Lake. Species found in the ephemeral portion of Horsfall Lake near Old Bark Road will reflect the species found in the main portion of the lake. This includes largemouth bass, yellow perch, three-spine stickleback, and sculpins.

Table 45. Gamefish present in lakes within OHV Riding areas of the ODNRA.

Lake											
	Brown bullhead	Cutthroat trout	Hatchery rainbow	Generic crappie	Black crappie	Warmouth	Bluegill	Pumpkinseed	Largemouth bass	Yellow perch	
	North Riding Area										
Bear Lake (no gamefish)											
Cleawox Lake	X		X		X		X		X	X	
Siltcoos “Lagoon”	X	X			X		X		X		
	Central Riding Area										
none											
	South Riding Area										
Clear Lake (Coos County)		X								X	
Saunders Lake			X	X			X		X	X	
Butterfield Lake		X			X	X	X	X	X		
Beale Lake							X		X	X	
McKeown Reservoir (no data)											
Snag Lake	X								X	X	
Teal Lake (no data)											
Sandpoint Lake (no data)											
Spirit Lake (no data)											
Horsfall Lake	X								X	X	

Fish are also present in streams that surround the riding areas. These include the Siltcoos River, Tenmile Creek, Saunders Creek, and in the North Slough of Coos Bay. The Siltcoos River and Tenmile Creek contain western brook lamprey *Lampetra richardsoni*, Pacific lamprey *L. tridentata*, white sturgeon *Acipenser transmontanus*, coho salmon, cutthroat trout, steelhead trout, redbelt shiner *Rhichardsonius balteatus*, speckled dace *Rhinichthys osculus*, three-spine stickleback, sculpins, and groundfish, especially starry flounder. Pacific eulachon are also reported to be in Tenmile Creek and Coos Bay, although neither waterbody has been designated as critical habitat for the species. Green sturgeon may also be present as they have been noted in the estuaries of nearby coastal rivers. The North Slough of Coos Bay contains Pacific lamprey, white sturgeon, green sturgeon, American shad *Alosa sapidissima*, coho salmon, cutthroat trout, steelhead trout, striped bass *Morone saxatilis*, three-spine stickleback, sculpins, and groundfish, especially starry flounder.

Relevant Issues and Analysis Area

This section is used to assist in refining the level of analysis needed for the proposed alternatives and to define the area of analysis for each species of concern.

Fish habitat within the analysis area consists mostly of warm-water lakes, including seasonal lake expansion in the south riding area; along with a limited number of creeks, most notably

Cleawox Creek in the north riding area and several unnamed, intermittent streams in the south riding area; and a limited amount of deflation plain wetlands in the north riding area. Relevant issues needing further analysis include potential affects to fish passage, direct effects of OHVs, human access to fish populations, sediment and turbidity, and potential for chemical pollutants (petroleum products). Due to the nature of the proposed actions affects to the following parameters are not expected to occur and no further analysis is necessary: pool forming large wood, shade and temperature, stream flow, food supply, and nutrients.

Direct effects to fish present in the Siltcoos River, Tenmile Creek, and North Slough/Coos Bay are not expected to occur from implementation of any of the alternatives. This includes all of the listed species, management indicator species, and groundfish. The reason for this is that topography and vegetation prevents use of these areas by OHV enthusiasts. For example, at the north riding area a thick barrier of trees and brush over 100 yards wide separates the open sand used OHV's from the Siltcoos River, and at the south riding area the railroad and associated right-of-way separates riders from the North Slough.

The area of analysis for effects to fish species will be limited to the OHV riding areas. This is because the very limited surface drainage within the OHV riding areas prevents indirect effects from spreading to a wider area. To help illustrate this limited area of consideration, if conducting an analysis for a timber sale, the analysis area for fish may exceed the boundaries of the planning area (as defined in the environmental impact statement) due to potential effects to downstream areas. However, in the OHV riding areas there is little chance of any affects to fish spreading beyond the riding areas themselves, and the analysis area for fish does not need to be expanded beyond the bounds of the planning area (10 B and MA 10 (C) areas).

Effects

In general, fisheries resources within MA 10 (C) portion of the riding areas of the Oregon Dunes National Recreation Area are not measurable, with no fish even occurring within the middle riding area. Additionally, current OHV use is having little effect on these fisheries resources and all of the alternatives will reduce these effects further. No Threatened, Endangered, Proposed, or Sensitive species occur in the MA 10 (C) portion of the riding areas, or in areas close enough downstream to be affected by this project, nor is any critical habitat or essential fish habitat present in these areas.

OHVs currently have direct access to (can drive in) fish habitat in the outlet to Cleawox Lake (both MA 10 (B) and MA 10 (C) portions) of the northern riding area, and to the overflow of Horsfall Lake (again, both MA 10 (B) and MA 10 (C)) of the southern area. Both of these areas only provide habitat for fish during the wet portion of the year, typically late November to early July. During the dry part of the year, any fish that do not move back into areas with perennial water, perish. Direct impacts to fish can only occur during that time of the year when water and fish are present. This time period also coincides with much of the low OHV use period for the riding areas.

Direct effects to fish can occur where new designated routes and rezones overlap with fish habitat. Proposed designated route **R3** crosses the outlet of Cleawox Lake and is included in Alternatives 2, 3, 4, and 5. Rezone area **A3** includes the area where the water from Cleawox Lake meets the deflation plain in the northwest corner of the north riding area. Rezone **A3** is included in Alternatives 2, 4, and 5. The northern part of rezone area **A4** (or **A4N**) includes a portion of the Horsfall Lake overflow and is included in Alternative 5. Rezone area **A7** is

bounded on its southern edge by a stream segment of the Cleawox Lake outflow and is included in Alternative 4. Rezone **A12** includes the same section of the Cleawox Lake outlet as **A7** along with some additional stream length to the southeast.

Direct effects to fish occur when OHVs drive through water occupied by fish. This mostly just disturbs the fish which can interfere with breeding, feeding, and sheltering. Direct mortality can also occur if fish get crushed under a vehicle's wheels. Sculpins, a bottom dwelling fish, would be more likely to suffer direct mortality than other species.

The extent of indirect affects to fish caused changes in sediment supply or chemical contamination follow a similar pattern as that of direct affects. All of the alternatives would reduce the amount sediment generation and potential for chemical contamination when compared to the existing condition. Sediment generation consists mostly of sand which settles out quickly and has little effect on the sand substrates present in the streams and ephemeral ponds. Chemical contamination of water by grease, oil, and gasoline leaks is not currently known to be problematic for fish and would decrease under all alternatives. The extent of the decreases associated with each alternative is dependent upon number of designated routes and the amount of rezone within the fish bearing portions of the MA 10 (C) areas.

Indirect effects caused by human access to fish populations vary depending on whether an alternative includes access to the western shore of Cleawox Lake. Access to all other fish populations remains the same among alternatives. The effect that increased access to Cleawox Lake causes to fish populations is very minor due to easy angler access to the lake from Honeyman State Park on the eastern shore and because most OHV riders who visit the ODNRA are there for the riding experience and relatively few are there to fish.

Effects Common to All Alternatives – Effects to aquatic organism passage will be the same throughout all of the alternatives and are the same as the existing condition. In short, OHVs ford the sandy streams at various locations and these fords pose no fish passage issues. Currently, none of the alternatives propose construction of any stream crossings so no future passage issues are expected.

Alternative 1 (No Action)-Fisheries

Direct Effects

When compared to the existing condition this alternative has the greatest reduction in OHV use in waters containing fish. This would result in a corresponding decrease in direct effects to fish present in MA 10 (C) areas. Although effects to fish from the existing condition are considered not measurable, this alternative would decrease them further.

Indirect Effects

This alternative has the least number of designated routes and the least amount of rezone area within the fish bearing portions of MA 10 (C). This would result in a corresponding greatest decrease in indirect effects (sediment and potential for chemical contamination) to fish of any of the alternatives. Although effects to fish from the existing condition are considered not measurable, this alternative would decrease them further. This alternative also maintains the closure on access to the west side of Cleawox Lake which would eliminate a fishing opportunity when compared to the existing condition.

Alternative 2 (Proposed Action)-Fisheries

Direct Effects

This alternative would decrease the amount of OHV use in waters containing fish an intermediate amount of among the alternatives when compared to the existing condition. This would result in a corresponding intermediate decrease in direct effects to fish present in MA 10 (C) areas. Although effects to fish from the existing condition are considered not measurable, this alternative would decrease them further.

Indirect Effects

This alternative has an intermediate number of designated routes and amount of rezone area within the fish bearing portions of MA 10 (C). This would result in a corresponding intermediate decrease in indirect effects (sediment and potential for chemical contamination) to fish of any of the alternatives. Although effects to fish from the existing condition are considered not measurable, this alternative would decrease them further. This alternative also maintains the closure on access to the west side of Cleawox Lake which would eliminate a fishing opportunity when compared to the existing condition.

Alternative 3-Fisheries

Direct Effects

This alternative would decrease the amount of OHV use in waters containing fish to a level between that of Alternatives 1 and 2. This would result in a corresponding decrease in direct affects to fish present in MA 10 (C) areas when compared to the existing condition. Although effects to fish from the existing condition are considered not measurable, this alternative would decrease them further.

Indirect Effects

This alternative has an intermediate number of designated routes and no rezone areas within the fish bearing portions of MA 10 (C). Indirect effects (sediment and potential for chemical contamination) are therefore also at a level between that of Alternatives 1 and 2. Although effects to fish from the existing condition are considered not measurable, this alternative would decrease them further. This alternative also maintains the closure on access to the west side of Cleawox Lake which would eliminate a fishing opportunity when compared to the existing condition.

Alternative 4 -Fisheries

Direct Effects

This alternative would decrease the amount of OHV use in waters containing fish to a level between that of the existing condition than that of Alternative 2. This would result in a corresponding decrease in direct affects to fish present in MA 10 (C) areas when compared to the existing condition. Although effects to fish from the existing condition are considered not measurable, this alternative would decrease them further.

Indirect Effects

This alternative would reduce indirect effects (sediment and potential for chemical contamination) when compared to the existing condition to that of a level between that of Alternatives 2 and 5. Although effects to fish from the existing condition are considered not measurable, this alternative would decrease them further. This alternative also maintains the closure on access to the west side of Cleawox Lake which would eliminate a fishing opportunity when compared to the existing condition.

Modified Alternative 4 (Preferred Alternative)-Fisheries

Direct Effects

This alternative would decrease the amount of OHV use in waters containing fish to a level between that of the existing condition than that of Alternative 2. This would result in a corresponding decrease in direct affects to fish present in MA 10 (C) areas when compared to the existing condition. Although effects to fish from the existing condition are considered not measurable, this alternative would decrease them further.

Indirect Effects

This alternative would reduce indirect effects (sediment and potential for chemical contamination) when compared to the existing condition to that of a level between that of Alternatives 2 and 5. Although effects to fish from the existing condition are considered not measurable, this alternative would decrease them further. This alternative also maintains the closure on access to the west side of Cleawox Lake which would eliminate a fishing opportunity when compared to the existing condition.

Alternative 5-Fisheries

Direct Effects

This alternative would decrease the amount of OHV use in waters containing fish the least of all the alternatives. This would result in a corresponding decrease in direct affects to fish present in MA 10 (C) areas when compared to the existing condition. Although effects to fish from the existing condition are considered not measurable, this alternative would decrease them further.

Indirect Effects

This alternative would reduce indirect effects (sediment and potential for chemical contamination) when compared to the existing condition, but less than any of the other alternatives. Although effects to fish from the existing condition are considered not measurable, this alternative would decrease them further. This alternative is the only alternative that provides access to the west side of Cleawox Lake and maintains this fishing opportunity similar to the existing condition.

Cumulative Effects for all Action Alternatives

Current effects to fish populations and habitat are considered not measurable and would be decreased further under all of the alternatives when compared to the existing condition. The direct and indirect effects are not measureable and therefore by definition there are no cumulative effects.

Hydrology and Soils (District Hydrologist, USFS, 2012d)

For further details and discussion of the hydrology and soils of the project area, please see the specialist report pertaining to these topics (USFS, 2012d).

Affected Environment

For this EIS, the primary concerns are excessive soil erosion risk, proximity to sensitive features (such as waterbodies, or sensitive soils), the ability of the soil to resist impacts and ability to recover from those impacts. This is because soil productivity, as it relates to growing vegetation, is not a management concern in the ODNRA. Soil erosion risk was visually analyzed on trail segments and rezone areas as a whole that have a potential risk for erosion, especially areas that possess the possibility for material that could be delivered to waterbodies. At this scale, impacts were based on 1) erosion risk at a very site-specific scale for potential off site impacts to water; and 2) at the OHV system scale for sensitive land risk and soil resistance/resiliency. Both factors are based on the amount of land potentially impacted by the OHV system and by alternative. Comparison of the alternatives was measured relative to one another by both OHV concentrated use and OHV use dispersed over the system. See Tables 36, 37, 38 and 39 in the Effected Environment and Environmental Effects section for designated route and reallocation proposals for specific water and soil resource concerns.

Soil Productivity

The effect of Off Highway Vehicles (OHV) on soil properties has been studied extensively. The USGS compiled extensive information in their Open File Report 2007-1353 titled “Environmental Effects of Off-Highway Vehicles on Bureau of Land Management Lands: A Literature Synthesis, Annotated Bibliographies, Extensive Bibliographies, and Internet Resources”. Their executive summary stated: “The primary effects of OHV activity on soils and overall watershed function include altered soil structure (soil compaction in particular), destruction of soil crusts (biotic and abiotic) and desert pavement (fine gravel surfaces) that would otherwise stabilize soils, and soil erosion. Indicators of soil compaction discussed in the OHV effects literature include soil bulk density (weight per unit of volume), soil strength (the soil’s resistance to deforming forces), and soil permeability (the rate at which water or air infiltrates into soil). Generally, soil bulk density and strength increase with compaction, whereas permeability decreases with compaction. As soil compaction increases, the soil’s ability to support vegetation diminishes because the resulting increases in soil strength and changes in soil structure (loss of porosity) inhibit the growth of root systems and reduce infiltration of water. As vegetative cover, water infiltration, and soil stabilizing crusts are diminished or disrupted, the precipitation runoff rates increase, further accelerating rates of soil erosion”. This summary would be agreed on throughout research with the only difference being to what extent and magnitude these effects occur on different soil series.

As mentioned earlier, sandy soils are dominant in the Oregon Dunes National Recreation Area. Literature pertaining to OHVs in this environment is scarce. A literature search found no studies that have been conducted in the Oregon Dunes National Recreation Area that pertain to the effects of OHVs on the local soil.

Research conducted by Wilshire et al. (1978) in the San Francisco area found that bulk density increased by 8% in sand soils compared to other soil types (clayey and loamy) that increased by

an average of 18%. This is well below the forest standard (FW-107) that limits increases in bulk density within the definition of detrimental soil impacts; however, this standard is for timber stands and not dune systems. Anders and Leatherman (1987) also revealed that OHV use in sand can increase bulk densities up to 35cm in depth. This increase in bulk density (more grain to grain contact) can result in increased friction and resistance to downslope motion, but the upper two inches of sand is sloughed and very mobile which agrees with Wilshire et al. 1978 study.

Wilshire et al. (1978) also revealed that the moisture content of sand soils increased by 23% compared to other loamy soils that showed a decrease in soil moisture content by 43% with OHV use. The increase in soil moisture content of sand soils is due to the compacting of pore space in sands. The tighter pore space is then able to more efficiently adsorb water molecules. The decrease in other soils where the pore space is decreased past the point of allowing water to infiltrate its' pore space.

The loss of vegetation and increase in bulk density can lead to an extended diurnal range of temperatures in the soil up to a depth of 10 cm (Wilshire et al. 1978). This result is due to the combined effects of loss of shade from vegetation, decrease transpiration, and bulk density change which relates to soils insulation capabilities. Wilshire et al. (1978) also revealed the loss of vegetation led to reduced organic carbon in the upper 10 cm by 42% in sandy soils and 33% in more silty soils. This result is due to the loss of the A horizon.

The surface strength of beach sand was shown to decrease compared to other soils increase with OHV use, thus leading to a higher potential for surface sands to become mobilized (Wilshire et al. 1978, and Anders and Leatherman 1987). The decrease in surface strength of sand is due to the loss of cohesion in surficial crusts.

OHV use on steeper coastal terrain results in more soil movement downslope (Anders and Leatherman 1987). This can be witnessed at all trail locations on the ODNRA that tread through sloped vegetated areas especially "Banshee Hill". This affect is not as noticeable in open sand areas where the angle of repose is not exaggerated by established vegetation. Anders and Leatherman (1987) also revealed that OHV use in sand can increase bulk densities up to 35cm in depth. This increase in bulk density (more grain to grain contact) can result in increased friction and resistance to downslope motion, but the upper two inches of sand is sloughed and very mobile which agrees with Wilshire et al., 1978 study. As with all research that examines soil compaction by any use, the most impact is completed in the first few passes. This holds true in the studies completed in more sandy systems. This concludes that there would be no further route or reallocation area compaction where OHV use is maintained on current use-developed routes.

Table 46. Specific details and soil resource concerns by proposed route and alternative.

Proposed Route	Alternative	Riding Area	Miles	Soil Series/Texture*	Resource Concerns
R1	2,3,4, Mod. 4, 5	North	0.3	28, 59D / Fine Sand-Sand	Soil moving into east vegetation
R2	2,3,4, Mod. 4, 5	North	0.2	59D / Fine Sand	~3 ft incision in areas
R3	2,3,4, Mod. 4, 5	North	0.5	59D / Fine Sand	Side slope stability, ~5 ft incision in areas
R5	2,3,4, Mod. 4, 5	North	0.3	28, 59D / Fine Sand-Sand	Surface water on route, impassible during winter
R6	2,3,4,5	North	0.4	59D / Fine Sand	Side slope stability, ~5 ft incision in areas
R8	2,3	Middle	1.2	29B, 59D / Fine Sand-Sand	Water on trail, potential of trail widening from users avoiding water
R10	2,3,4, Mod. 4, 5	South	0.4	59D / Fine Sand-Sand	Water on trail potential of trail widening from users avoiding water, need widened to meet standard
R11	2,3,4, Mod. 4, 5	South	0.1	59D / Fine Sand-Sand	None identified
R12	5	South	0.4	59D / Fine Sand-Sand	Water on trail, potential of trail widening from users avoiding water, side slope stability issue, need widened to meet standard
R13	5	South	0.2	59D / Fine Sand-Sand	5 ft buffer to pond, slope stability issue on north end, need widened to meet standard
R14	3	South	0.2	59D / Fine Sand	Side slope stability, ~10 ft incision in areas
R15	3	South	0.1	59D / Fine Sand	Side slope stability, ~10 ft incision in areas
R16	2,3,4, Mod. 4,5	North	0.1	59D / Fine Sand	Would have to be widened, side slope stability

* Texture was determined through soil survey data and ground verification.

Table 47. Specific details and soil resource concerns by proposed reallocation (rezone) and alternative is shown.

Proposed Rezone	Alternative	Riding Area	Acres	Dominant Soil Series/Texture by Survey & Field Verification	Resource Concerns for Soil
A1	2,4, Mod. 4, 5	North	33	28, 16 / Fine Sand-Sand	Seasonal ponded surface water could cause trail widening, trail incision (~2 ft)
A2	2,4, Mod. 4, 5	North	156	59D / Fine Sand	OHV use causing trail incision (~3 ft) and soil mobility
A3	2,4,5	North	6	16, 28 / Sand-Fine Sand	Cleawox overflow drains through this area. Fecal coliform concern from sand camping
Modified A3	Modified 4	North	28	16, 28 / Sand-Fine Sand	Cleawox overflow drains through this area. Fecal coliform concern from sand camping
A4 North	5	South	7	16, 28 / Sand-Fine Sand	Seasonal ponded surface water could cause trail widening (~2 ft)
A4 South	2,4, Mod. 4, 5	South	22	59D / Fine Sand	OHV use causing trail incision (~2 ft) and soil mobility
A5	2,4, Mod. 4, 5	South	15	16, 59D, 28 / Sand-Fine Sand	Surface water present and minor trail incision
A6	4, Mod. 4, 5	North	15	59D, 16 / Fine Sand-Sand	OHV use causing trail incision (6 ft) and soil mobility
A7	4, Mod. 4	North	73	59D, 16 / Fine Sand-Sand	OHV use causing trail incision (3 ft) and soil mobility
A8	4, Mod. 4	North	9	16, 59D / Sand-Fine Sand	OHV use causing trail incision (6 ft) and soil mobility
A9	4, Mod. 4	North	6	59D, 16 / Fine Sand-Sand	OHV use causing trail incision (6 ft) and soil mobility
A10	4, Mod. 4	North	33	59D / Fine Sand	OHV use causing trail incision (6 ft) and soil mobility
A12	5	North	50	59D, 16 / Fine Sand-Sand	OHV has direct access to Bear Lake shoreline
A13	5	North	112	59D, 16 / Fine Sand-Sand	OHV use causing trail incision (6 ft) and soil mobility
A14	5	North	416	28, 16 / Fine Sand-Sand	Closed trails are slow in recovery
A15	2,4, Mod. 4, 5	Middle	2	59E, 16 / Fine Sand-Sand	~40% slope. Large sand deposit at base from upslope disturbance. Uncertain of effects from continued use
A16	4,5	Middle	132	28, 59D, 29B / Fine Sand-Sand	OHV use causing trail incision (6 ft) and soil mobility
Modified A16	Modified 4	Middle	109	28, 59D, 29B / Fine Sand-Sand	OHV use causing trail incision (6 ft) and soil mobility

Proposed Rezone	Alternative	Riding Area	Acres	Dominant Soil Series/Texture by Survey & Field Verification	Resource Concerns for Soil
A17	Modified 4	North	64	59D, 16 / Fine Sand-Sand	OHV use causing trail incision (6 ft) and soil mobility

Water Quality

The effects of OHV activities on water quality can include sedimentation (deposited solids), turbidity (mostly suspended solids, dissolved solids), and pollutants within affected watersheds. Sedimentation increases because compacted soils, disrupted soil crusts, and reduced vegetation cover can lead to increased amounts and velocities of runoff; in turn, this accelerates the rates at which sediments and other debris are eroded from OHV-impacted areas and flushed to aquatic systems downslope. Pollutants associated with deposition of OHV emissions and spills of petroleum products may be adsorbed to sediments, absorbed by plant material, or dissolved in runoff; once mobilized, these contaminants may enter aquatic systems.

Study of the effects of OHV use on water quality has received very little attention due, in part, to the fact that research has been focused more on OHV use in arid environments where aquatic environments are either seasonal or rare (Ouren et al. 2007). In some cases, scientists utilize research on effects of roads to draw conclusions about potential effects from OHV trails (Ouren et al. 2007). In general, roads and OHV trails are similar in potential effects, but differ in the magnitude of some of these effects due to the smaller template (i.e., width) of a trail versus a road. Two main potential water pollutants resulting from OHVs are sediment and OHV-dispersed chemicals. Other water quality parameters, such as stream temperature, are less likely to be influenced by OHV use due to the narrow width needed for the trail (~6 ft to 10 ft clearing width) or designated route (16 ft). Very little vegetation that currently provides shade is expected to be removed, so no increase of stream temperature is anticipated from this activity.

Sediment can be directly introduced into surface water via tires and indirectly through erosion and runoff from trail systems. There may be up to five major processes to introduce sediment into aquatic systems from OHVs: 1) the exposure of surfaces; 2) the concentration of surface runoff in wheel ruts; 3) soil compaction and subsequent reduction of water infiltration leading to increased surface runoff; 4) backwash from the vehicles as they enter and exit a crossing; and 5) undercutting of banks by wave action as vehicles travel through water (Brown 1994). OHV-dispersed chemicals, such as oil and gas, can enter aquatic systems via direct flushing from spills and emissions or indirect flushing from residue that has settled on adjacent plants or soils (Adams 2011, Goossens and Buck 2009). According to Coos Bay North Bend Water Board, there have not been any positive tests for volatile organic compounds (VOCs) in the south riding area groundwater (personal communication with Rob Schab, General Manager for Coos Bay North Bend Water Board). It is believed that these products could possibly be detected in non-flowing small surface waters at the parts per million (ppm) detection level in the vicinity of heavily concentrated OHV use.

Sedimentation

OHV use has the potential to increase compaction which, in turn, decreases water infiltration into soils and increases surface runoff. This runoff can transport exposed soil particles to surface water. Iverson et al. (1980 and 1981) found that this potential is highest in areas where infiltration rates are low, slopes are steep, soil types are fine grained and rainfall events are frequent and intense. In one study Iverson et al. (1981) observed that where OHVs had traveled over the soil, surface runoff was five times greater and yielded 10-20 times more sediment than areas where there was no soil disturbance. Foltz (2006) found that there was not a statistically significant difference between OHV use levels and soil infiltration patterns, but there was a

significant difference between undisturbed areas and the disturbed areas. In all cases sediment movement would be expected to increase due to OHV traffic (Foltz 2006).

Total suspended solid samples were collected at an OHV stream crossing during an Alabama study in 2003 and 2004. They found that the largest suspended sediment load contributed by the stream crossing occurred during a large rainstorm when the trail was closed (Ayala et al. 2005). Modeling was completed on the same stream crossing and it suggested that most of the sediment load delivered to the stream was coming from a steep hillslope section that flows directly into the stream. This illustrates the role that natural physical factors like precipitation and slope play in the erosion potential of an OHV trail.

Welsh et al. (2006) attempted to quantify sediment production and delivery from unpaved roads and OHV trails in the Upper South Platte River in Colorado. Measurements including rainfall, sediment production and other road characteristics were taken on road and trail segments in the area. They found that “summer rainstorms larger than 10 mm (0.4 inches) typically produced sediment from each road and OHV segment while undisturbed areas generally produced no surface runoff”. Sediment production from OHV trails ($0.4\text{--}6.7\text{ kg m}^{-2}$) was more than five times the mean value from unpaved roads (18.4 kg m^{-2}) in the Welsh et al. (2006) study.

As mentioned earlier, the dominant soils in the ODNRA are sands. Sands introduced into a water column settle to the bottom in ~40 seconds (Gee and Bauder 1986) leaving their contribution to turbidity and total suspended sediments (TSS) low. The larger contributors to TSS and turbidity are silts, clays, and organic matter which will become more of a factor where OHVs are riding in areas of developing soil and vegetation. Overall, TSS concentrations and turbidity levels from OHV use in the ODNRA are assumed to be low. This would not be the case where a trail or designated route is located on a more loamy or clayey soil. In this instance it would not be recommended for OHV use where elevated turbidity levels would conflict with water quality management goals.

Dust, Bacteriological and Chemical Contaminants

As described above, OHV use has the potential to introduce other chemicals into the aquatic environment. Airborne dust and contaminants adsorbed to dust particles created by OHV traffic has the potential to settle out in wetlands (Forman et al. 2003, Adams 2011). Contaminants, including petroleum products, may enter water through direct flushing. This could happen on trails, but is more likely to be a concern in staging areas where vehicles are parked and OHVs are refueled. Shepp (1996) compared total hydrocarbon contents from automotive sources in storm runoff from four urban settings: an all-day parking lot, a busy street, a gasoline station, and a convenience store parking lot. Highest hydrocarbon concentrations were found in runoff water from the convenience store parking lot and the lowest concentrations were from the all-day parking lot. Shepp (1996) suggests that seepage from oil bearing regions of a car are greatest during “thermal expansion and contraction” or immediately after you start a car or shut it off. He observed that high concentrations of hydrocarbons in parking lots are a function of two factors: 1) the duration of automobile exposure (i.e., the time a given impervious surface is exposed to hot vehicles in a thermal expansion mode); and 2) the volume of automotive exposure (i.e., the number of hot vehicles in a thermal expansion mode exposed to a given impervious surface). This would explain why a convenience store parking lot would have high concentrations of hydrocarbons when compared to an all-day parking lot. There are no staging areas proposed with this project. It is believed that volatile organic carbons (VOC) and hydrocarbons could pose an

issue where OHVs may congregate in a riding area. The magnitude of this effect would be dependent on the distance of the area to a waterbody.

There is a potential for bacteriological water contamination from intensive recreation use. Introduction of fecal coliform is possible in areas that do not have sanitation facilities. As noted for VOCs and hydrocarbons, the magnitude of this effect would be dependent on the distance between a congregation area and a waterbody.

Table 48. Specific details and water resource concerns by proposed route and alternative.

Proposed Route	Alternative	Riding Area	Miles	Approximate Minimum Distance to Surface Water in feet	Approximate Minimum Distance to Water Right in feet (permit number)	Resource Concerns
R1	2,3,4,5	North	0.3	N/A	N/A*	None identified
R2	2,3,4,5	North	0.2	N/A	N/A*	None identified
R3	2,3,4,5	North	0.5	950	N/A*	None identified
R5	2,3,4,5	North	0.3	0**	N/A*	Surface water on route in winter, impassible issues during winter
R6	2,3,4,5	North	0.4	350	N/A*	None identified
R8	2,3	Middle	1.2	0**	60 (34393)	Surface water on route, impassible issues during winter
R10	2,3,4,5	South	0.4	800	200 (47095)	None identified
R11	2,3,4,5	South	0.1	50	400 (10132,47095)	None identified
R12	5	South	0.4	0**	200 (47095)	Surface water on route
R13	5	South	0.2	5	60 (10132)	Small buffer between route and pond
R14	3	South	0.2	400	100 (47095)	None identified
R15	3	South	0.1	500	230 (47095)	None identified
R16	2,3,4,5	North	0.1	5	N/A*	Small buffer between route and deflation plain

*N/A applies to routes that are further than 1,000 feet from surface water or water right.

**Groundwater present at least seasonally.

Table 49. Specific details and water resource concerns by proposed reallocation (rezone) and alternative.

Proposed Rezone	Alternative	Riding Area	Acres	Approximate Minimum Distance (ft) to Surface Water	Approximate Minimum Distance (ft) to Water Right (permit number)	Resource Concerns for Water
A1	2,4,5	North	33	0 **	N/A *	Seasonal ponded surface water
A2	2,4,5	North	156	5	N/A *	Potential sand movement into deflation plain
A3	2,4,5	North	6	0 **	N/A *	Cleawox overflow drains through this area. Fecal coliform concern from camping
Modified A3	Modified 4	North	28	0 **	N/A *	Cleawox overflow drains through this area. Fecal coliform concern from camping
A4 North	5	South	7	0**	100 (10132)	Seasonal ponded surface water
A4 South	2,4,5	South	22	0**	0 (47095,10132)	Seasonal ponded surface water
A5	2,4,5	South	15	0**	170 (47095,10132)	Seasonal ponded surface water
A6	4,5	North	15	400	N/A *	None Identified
A7	4	North	73	0**	N/A *	Strict OHV mgmt.. to keep Bear Lake access closed
A8	4	North	9	N/A *	N/A *	None Identified
A9	4	North	6	N/A *	N/A *	None Identified
A10	4	North	33	200	200 (44501)	None Identified
A12	5	North	50	0**	200 (44501)	OHV has direct access to Bear Lake shoreline
A13	5	North	112	N/A *	200 (44501)	None Identified
A14	5	North	416	0**	N/A *	Seasonal ponded surface water
A15	2,4,5	Middle	2	N/A *	N/A *	None Identified

Proposed Rezone	Alternative	Riding Area	Acres	Approximate Minimum Distance (ft) to Surface Water	Approximate Minimum Distance (ft) to Water Right (permit number)	Resource Concerns for Water
A16	4,5	Middle	132	0**	0 (34393,8918)	Seasonal ponded surface water
Modified A16	Modified 4	Middle	109	0**	0 (34393,8918)	Seasonal ponded surface water
A17	Modified 4	North	64	N/A*	200 (44501)	None Identified

*N/A applies to routes that are further than 1,000 feet from surface water or water right.

**Groundwater present at least seasonally.

Based on where this project is located within the previously mentioned watersheds, the boundary or scope of direct, indirect and cumulative effects are only considered in the immediate MA 10 (C) area of the project for soils, or the dunes system itself, and at the 6th filed watershed scale (Siltcoos Lake, Bernhardt Creek, Lakeside Frontal, Haynes Inlet, North Spit Front watersheds) for water resources.

Alternative 1-Hydrology

Direct and Indirect Effects

Closing use-developed routes would lead to the revegetation of those routes. As more vegetation establishes, the demand on groundwater would also increase in the local area because of the increase in transpiration. The increased transpiration of groundwater is not expected to have a significant negative effect on groundwater availability or water table elevation at the 6th field scale, but could possibly be measured and is therefore a long term minor effect. As organic matter is incorporated into the soil more iron would become mobile and would leach into groundwater. This effect would be measurable at the site scale and would increase with time and vegetation. This is not a water quality issue, but more of an aesthetic issue. Iron can be removed through treatment of consumptive water. Organic matter input into the soil from establishing vegetation would also increase soil development and enhance productivity. Both soil development and productivity would increase with time and would be a significant, long term effect. Also, as vegetation is established, the soil on those routes would become stabilized and less susceptible to wind erosion. The force of wind moving sand is a natural part of the dune system and is examined as a long term neutral effect depending on the area. Finally, as the compaction of the sand decreases, the soil water holding capacity would also decrease allowing higher infiltration and percolation rates and would be a local long term minor effect.

Concentrating OHV use on existing designated trails would magnify their potential effects on the local system. These effects include increases in volatile organic compound (VOC) inputs, hydrocarbon inputs, soil displacement, soil water holding capacity, and fecal coliform concentrations. The magnitude of these effects is uncertain, but is expected to be long term and depends on the future OHV density patterns on these routes. VOC, hydrocarbon and fecal coliform inputs would be greatest in areas where OHVs congregate. The effect of these inputs would have the most impact in areas that are located in close proximity to surface waterbodies

where there is little time for natural processing of these inputs. It is believed that VOC and hydrocarbon inputs would be detected in smaller waterbodies where OHV use is allowed and would be a long term minor effect. Currently, water samples collected by CBNB Water Board reveal negative results for VOC contamination. VOC and hydrocarbon inputs into groundwater remain a potential effect with continued OHV use. It is expected that groundwater contamination from these inputs would be a minor long term effect. Soil disturbance on designated routes would remain unchanged but could possibly increase, along with vegetation disturbance, if OHVs travel outside of designated routes.

This alternative would be the most restrictive for OHV use and therefore would concentrate the most use on current designated routes. Because of this, the above listed effects would occur in the largest magnitude on these routes when compared to other alternatives.

Alternative 2 (Proposed Action) -Hydrology

Direct and Indirect Effects

Closing user-developed routes would lead to the revegetation of those routes. As more vegetation establishes, the demand on groundwater would also increase in the local area because of the increase in transpiration. The increased transpiration of groundwater is not expected to have a significant negative effect on groundwater availability or water table elevation at the 6th field scale, but could possibly be measured and is therefore a long term minor effect. As organic matter is incorporated into the soil more iron would become mobile and would leach into groundwater. This effect would be measurable at the site scale and would increase with time and vegetation. This is not a water quality issue, but more of an aesthetic issue. Iron can be removed through treatment of consumptive water. Organic matter input into the soil from establishing vegetation would also increase soil development and enhance productivity. Both soil development and productivity would increase with time and would be a significant, long term effect. Also, as vegetation is established, the soil on those routes would become stabilized and less susceptible to wind erosion. The force of wind moving sand is a natural part of the dune system and is examined as a long term neutral effect depending on the area. Finally, as the compaction of the sand decreases, the soil water holding capacity would also decrease allowing higher infiltration and percolation rates and would be a local long term minor effect.

Concentrating OHV use on existing designated trails would magnify their potential effects on the local system. These effects include increases in volatile organic compound (VOC) inputs, hydrocarbon inputs, soil displacement, soil water holding capacity, and fecal coliform concentrations. The magnitude of these effects is uncertain, but is expected to be long term and depends on the future OHV density patterns on these routes. VOC, hydrocarbon and fecal coliform inputs would be greatest in areas where OHVs congregate. The effect of these inputs would have the most impact in areas that are located in close proximity to surface waterbodies where there is little time for natural processing of these inputs. It is believed that VOC and hydrocarbon inputs would be detected in smaller waterbodies where OHV use is allowed and would be a long term minor effect. Currently, water samples collected by CBNB Water Board reveal negative results for VOC contamination. VOC and hydrocarbon inputs into groundwater remain a potential effect with continued OHV use. It is expected that groundwater contamination from these inputs would be a minor long term effect. Soil disturbance on designated routes would remain unchanged but could possibly increase, along with vegetation disturbance, if OHVs travel outside of designated routes.

Designating additional routes would lessen the magnitude of resource impacts on nearby currently designated routes by distributing OHV use in the riding area. This would not be the situation if one designated route becomes favorable to the other or in an area already consisting of heavy use. Continued use of these routes would have the same effects of concentrating OHV use with the only difference being the magnitude of the effect which is dependent on the intensity of OHV use and the amount of area disturbed. All proposed designated routes currently exist as user made routes. Because of this, little if any additional resource impact is expected from their designation in the short term or long term. Additional resource impacts would occur where additional routes would need to be widened to meet designated route criteria. These impacts would be minor localized impacts and would be long term effects on the landscape.

Reallocating management areas from 10 (C) designated routes to 10 (B) open riding would allow current OHV impacts to continue in the redesignated area. By allowing OHV use to disperse across an area, the potential inputs of VOCs, hydrocarbons and fecal coliform should be lower in localized concentrations. The actual magnitude of these effects is uncertain, but is expected to be long term and depends on the future OHV density patterns in these areas. Heavier OHV use on trails and areas of OHV congregation in reallocated management areas would increase concern for VOC, hydrocarbon and fecal coliform input. Also, soil displacement (by OHV and wind over denuded soil) and soil water holding capacity could also increase in areas of use, but would be a localized minor long term effect. OHV use in vegetated areas would cause vegetation die back leading to reduced organic matter input into the soil over time which would slow the soil development and lower local iron input into the groundwater. The magnitude of the effects of soil displacement, soil development and soil water holding capacity are dependent on the level of OHV use concentration, but would be minor long term effects. If current trends foretell future use, impacts in these areas would be relatively minor based on the nature of this dune system (dynamic system of moving soil, low soil development and low water holding capacity).

Alternative 2 would be the first of three alternatives that proposes to reallocate current management area 10 (C) designated routes to 10 (B) open riding. This would change the designation of approximately 234 acres. By doing this, alternative 2 would have less concentrated impacts through the areas that are rezoned, but would result in more wide spread disturbance than alternative 1 or 3. Alternative 2 also proposes to designate 3.4 miles of routes which would be comparable to alternative 3 (3.6 miles) and alternative 5 (2.9 miles) and thus would share similar (in magnitude and duration) effects in these areas if no reallocations were selected.

Alternative 3-Hydrology

Direct and Indirect Effects

Closing user-developed routes would lead to the revegetation of those routes. As more vegetation establishes, the demand on groundwater would also increase in the local area because of the increase in transpiration. The increased transpiration of groundwater is not expected to have a significant negative effect on groundwater availability or water table elevation at the 6th field scale, but could possibly be measured and is therefore a long term minor effect. As organic matter is incorporated into the soil more iron would become mobile and would leach into groundwater. This effect would be measurable at the site scale and would increase with time and vegetation. This is not a water quality issue, but more of an aesthetic issue. Iron can be removed through treatment of consumptive water. Organic matter input into the soil from establishing

vegetation would also increase soil development and enhance productivity. Both soil development and productivity would increase with time and would be a significant, long term effect. Also, as vegetation is established, the soil on those routes would become stabilized and less susceptible to wind erosion. The force of wind moving sand is a natural part of the dune system and is examined as a long term neutral effect depending on the area. Finally, as the compaction of the sand decreases, the soil water holding capacity would also decrease allowing higher infiltration and percolation rates and would be a local long term minor effect.

Concentrating OHV use on existing designated trails would magnify their potential effects on the local system. These effects include increases in volatile organic compound (VOC) inputs, hydrocarbon inputs, soil displacement, soil water holding capacity, and fecal coliform concentrations. The magnitude of these effects is uncertain, but is expected to be long term and depends on the future OHV density patterns on these routes. VOC, hydrocarbon and fecal coliform inputs would be greatest in areas where OHVs congregate. The effect of these inputs would have the most impact in areas that are located in close proximity to surface waterbodies where there is little time for natural processing of these inputs. It is believed that VOC and hydrocarbon inputs would be detected in smaller waterbodies where OHV use is allowed and would be a long term minor effect. Currently, water samples collected by CBNB Water Board reveal negative results for VOC contamination. VOC and hydrocarbon inputs into groundwater remain a potential effect with continued OHV use. It is expected that groundwater contamination from these inputs would be a minor long term effect. Soil disturbance on designated routes would remain unchanged but could possibly increase, along with vegetation disturbance, if OHVs travel outside of designated routes.

Designating additional routes would lessen the magnitude of resource impacts on nearby currently designated routes by distributing OHV use in the riding area. This would not be the situation if one designated route becomes favorable to the other or in an area already consisting of heavy use. Continued use of these routes would have the same effects of concentrating OHV use with the only difference being the magnitude of the effect which is dependent on the intensity of OHV use and the amount of area disturbed. All proposed designated routes currently exist as user made routes. Because of this, little if any additional resource impact is expected from their designation in the short term or long term. Additional resource impacts would occur where additional routes would need to be widened to meet designated route criteria. These impacts would be minor localized impacts and would be long term effects on the landscape.

This alternative would be the second most restrictive for OHV use behind alternative 1 and therefore would have the same effects with only differences in magnitude of closed user-developed routes and OHV concentrations on designated routes (increase of 3.6 miles compared to alternative 1). The increase in designated route mileage is expected to relieve a portion of the magnitude of the effects of concentrating OHV use.

Alternative 4-Hydrology

Direct and Indirect Effects

Closing use-developed routes would lead to the revegetation of those routes. As more vegetation establishes, the demand on groundwater would also increase in the local area because of the increase in transpiration. The increased transpiration of groundwater is not expected to have a significant negative effect on groundwater availability or water table elevation at the 6th field

scale, but could possibly be measured and is therefore a long term minor effect. As organic matter is incorporated into the soil more iron would become mobile and would leach into groundwater. This effect would be measurable at the site scale and would increase with time and vegetation. This is not a water quality issue, but more of an aesthetic issue. Iron can be removed through treatment of consumptive water. Organic matter input into the soil from establishing vegetation would also increase soil development and enhance productivity. Both soil development and productivity would increase with time and would be a significant, long term effect. Also, as vegetation is established, the soil on those routes would become stabilized and less susceptible to wind erosion. The force of wind moving sand is a natural part of the dune system and is examined as a long term neutral effect depending on the area. Finally, as the compaction of the sand decreases, the soil water holding capacity would also decrease allowing higher infiltration and percolation rates and would be a local long term minor effect.

Concentrating OHV use on existing designated trails would magnify their potential effects on the local system. These effects include increases in volatile organic compound (VOC) inputs, hydrocarbon inputs, soil displacement, soil water holding capacity, and fecal coliform concentrations. The magnitude of these effects is uncertain, but is expected to be long term and depends on the future OHV density patterns on these routes. VOC, hydrocarbon and fecal coliform inputs would be greatest in areas where OHVs congregate. The effect of these inputs would have the most impact in areas that are located in close proximity to surface waterbodies where there is little time for natural processing of these inputs. It is believed that VOC and hydrocarbon inputs would be detected in smaller waterbodies where OHV use is allowed and would be a long term minor effect. Currently, water samples collected by CBNB Water Board reveal negative results for VOC contamination. VOC and hydrocarbon inputs into groundwater remain a potential effect with continued OHV use. It is expected that groundwater contamination from these inputs would be a minor long term effect. Soil disturbance on designated routes would remain unchanged but could possibly increase, along with vegetation disturbance, if OHVs travel outside of designated routes.

Designating additional routes would lessen the magnitude of resource impacts on nearby currently designated routes by distributing OHV use in the riding area. This would not be the situation if one designated route becomes favorable to the other or in an area already consisting of heavy use. Continued use of these routes would have the same effects of concentrating OHV use with the only difference being the magnitude of the effect which is dependent on the intensity of OHV use and the amount of area disturbed. All proposed designated routes currently exist as user made routes. Because of this, little if any additional resource impact is expected from their designation in the short term or long term. Additional resource impacts would occur where additional routes would need to be widened to meet designated route criteria. These impacts would be minor localized impacts and would be long term effects on the landscape.

Reallocating management areas from 10 (C) designated routes to 10 (B) open riding would allow current OHV impacts to continue in the redesignated area. By allowing OHV use to disperse across an area, the potential inputs of VOCs, hydrocarbons and fecal coliform should be lower in localized concentrations. The actual magnitude of these effects is uncertain, but is expected to be long term and depends on the future OHV density patterns in these areas. Heavier OHV use on trails and areas of OHV congregation in reallocated management areas would increase concern for VOC, hydrocarbon and fecal coliform input. Also, soil displacement (by OHV and wind over denuded soil) and soil water holding capacity could also increase in areas of use, but would be a

localized minor long term effect. OHV use in vegetated areas would cause vegetation die back leading to reduced organic matter input into the soil over time which would slow the soil development and lower local iron input into the groundwater. The magnitude of the effects of soil displacement, soil development and soil water holding capacity are dependent on the level of OHV use concentration, but would be minor long term effects. If current trends foretell future use, impacts in these areas would be relatively minor based on the nature of this dune system (dynamic system of moving soil, low soil development and low water holding capacity).

Alternative 4, like alternative 2 would reallocate current management area 10 (C) designated routes to 10 (B) open riding. This would change the designation of approximately 455 acres, 221 more acres than alternative 2. By doing this, alternative 4 would have more area of less concentrated impacts through the rezones than alternative 2, but would result in more wide spread disturbance. Also, alternative 4 would designate 2.3 miles of routes. This would be the lowest amount of route designation except for alternative 1, but would alleviate concentrated OHV use through the reallocation of lands.

Modified Alternative 4 (Preferred Alternative)-Hydrology

Direct and Indirect Effects

Closing use-developed routes would lead to the revegetation of those routes. As more vegetation establishes, the demand on groundwater would also increase in the local area because of the increase in transpiration. The increased transpiration of groundwater is not expected to have a significant negative effect on groundwater availability or water table elevation at the 6th field scale, but could possibly be measured and is therefore a long term minor effect. As organic matter is incorporated into the soil more iron would become mobile and would leach into groundwater. This effect would be measurable at the site scale and would increase with time and vegetation. This is not a water quality issue, but more of an aesthetic issue. Iron can be removed through treatment of consumptive water. Organic matter input into the soil from establishing vegetation would also increase soil development and enhance productivity. Both soil development and productivity would increase with time and would be a significant, long term effect. Also, as vegetation is established, the soil on those routes would become stabilized and less susceptible to wind erosion. The force of wind moving sand is a natural part of the dune system and is examined as a long term neutral effect depending on the area. Finally, as the compaction of the sand decreases, the soil water holding capacity would also decrease allowing higher infiltration and percolation rates and would be a local long term minor effect.

Concentrating OHV use on existing designated trails would magnify their potential effects on the local system. These effects include increases in volatile organic compound (VOC) inputs, hydrocarbon inputs, soil displacement, soil water holding capacity, and fecal coliform concentrations. The magnitude of these effects is uncertain, but is expected to be long term and depends on the future OHV density patterns on these routes. VOC, hydrocarbon and fecal coliform inputs would be greatest in areas where OHVs congregate. The effect of these inputs would have the most impact in areas that are located in close proximity to surface waterbodies where there is little time for natural processing of these inputs. It is believed that VOC and

hydrocarbon inputs would be detected in smaller waterbodies where OHV use is allowed and would be a long term minor effect. Currently, water samples collected by CBNB Water Board reveal negative results for VOC contamination. VOC and hydrocarbon inputs into groundwater remain a potential effect with continued OHV use. It is expected that groundwater contamination from these inputs would be a minor long term effect. Soil disturbance on designated routes would remain unchanged but could possibly increase, along with vegetation disturbance, if OHVs travel outside of designated routes.

Designating additional routes would lessen the magnitude of resource impacts on nearby currently designated routes by distributing OHV use in the riding area. This would not be the situation if one designated route becomes favorable to the other or in an area already consisting of heavy use. Continued use of these routes would have the same effects of concentrating OHV use with the only difference being the magnitude of the effect which is dependent on the intensity of OHV use and the amount of area disturbed. All proposed designated routes currently exist as user made routes. Because of this, little if any additional resource impact is expected from their designation in the short term or long term. Additional resource impacts would occur where additional routes would need to be widened to meet designated route criteria. These impacts would be minor localized impacts and would be long term effects on the landscape.

Reallocating management areas from 10 (C) designated routes to 10 (B) open riding would allow current OHV impacts to continue in the redesignated area. By allowing OHV use to disperse across an area, the potential inputs of VOCs, hydrocarbons and fecal coliform should be lower in localized concentrations. The actual magnitude of these effects is uncertain, but is expected to be long term and depends on the future OHV density patterns in these areas. Heavier OHV use on trails and areas of OHV congregation in reallocated management areas would increase concern for VOC, hydrocarbon and fecal coliform input. Also, soil displacement (by OHV and wind over denuded soil) and soil water holding capacity could also increase in areas of use, but would be a localized minor long term effect. OHV use in vegetated areas would cause vegetation die back leading to reduced organic matter input into the soil over time which would slow the soil development and lower local iron input into the groundwater. The magnitude of the effects of soil displacement, soil development and soil water holding capacity are dependent on the level of OHV use concentration, but would be minor long term effects. If current trends foretell future use, impacts in these areas would be relatively minor based on the nature of this dune system (dynamic system of moving soil, low soil development and low water holding capacity).

Modified Alternative 4, like alternatives 2 and 4 would reallocate current management area 10 (C) designated routes to 10 (B) open riding. This would change the designation of approximately 518 acres, 284 more acres than alternative 2 and 66 acres more than Alternative 4. By doing this, Modified Alternative 4 would have more area of less concentrated impacts through the rezones than alternative 2, and like Alternative 4 would result in more wide spread disturbance. Also, Modified Alternative 4, like Alternative 4, would designate 2.3 miles of routes. This would be

the lowest amount of route designation except for alternative 1, but would alleviate concentrated OHV use through the reallocation of lands.

Alternative 5-Hydrology

Direct and Indirect Effects

Closing user-developed routes would lead to the revegetation of those routes. As more vegetation establishes, the demand on groundwater would also increase in the local area because of the increase in transpiration. The increased transpiration of groundwater is not expected to have a significant negative effect on groundwater availability or water table elevation at the 6th field scale, but could possibly be measured and is therefore a long term minor effect. As organic matter is incorporated into the soil more iron would become mobile and would leach into groundwater. This effect would be measurable at the site scale and would increase with time and vegetation. This is not a water quality issue, but more of an aesthetic issue. Iron can be removed through treatment of consumptive water. Organic matter input into the soil from establishing vegetation would also increase soil development and enhance productivity. Both soil development and productivity would increase with time and would be a significant, long term effect. Also, as vegetation is established, the soil on those routes would become stabilized and less susceptible to wind erosion. The force of wind moving sand is a natural part of the dune system and is examined as a long term neutral effect depending on the area. Finally, as the compaction of the sand decreases, the soil water holding capacity would also decrease allowing higher infiltration and percolation rates and would be a local long term minor effect.

Concentrating OHV use on existing designated trails would magnify their potential effects on the local system. These effects include increases in volatile organic compound (VOC) inputs, hydrocarbon inputs, soil displacement, soil water holding capacity, and possible fecal coliform concentrations. The magnitude of these effects is uncertain, but is expected to be long term and depends on the future OHV density patterns on these routes. VOC, hydrocarbon and fecal coliform inputs would be greatest in areas where OHVs congregate. The effect of these inputs would have the most impact in areas that are located in close proximity to surface waterbodies where there is little time for natural processing of these inputs. It is believed that VOC and hydrocarbon inputs would be detected in smaller waterbodies where OHV use is allowed and would be a long term minor effect. Currently, water samples collected by CBNB Water Board reveal negative results for VOC contamination. VOC and hydrocarbon inputs into groundwater remain a potential effect with continued OHV use. It is expected that groundwater contamination from these inputs would be a minor long term effect. Soil disturbance on designated routes would remain unchanged but could possibly increase, along with vegetation disturbance, if OHVs travel outside of designated routes.

Designating additional routes would lessen the magnitude of resource impacts on nearby currently designated routes by distributing OHV use in the riding area. This would not be the situation if one designated route becomes favorable to the other or in an area already consisting of heavy use. Continued use of these routes would have the same effects of concentrating OHV use with the only difference being the magnitude of the effect which is dependent on the intensity of OHV use and the amount of area disturbed. All proposed designated routes currently exist as user made routes. Because of this, little if any additional resource impact is expected from their designation in the short term or long term. Additional resource impacts would occur where additional routes would need to be widened to meet designated route criteria. These impacts would be minor localized impacts and would be long term effects on the landscape.

Reallocating management areas from 10 (C) designated routes to 10 (B) open riding would allow current OHV impacts to continue in the redesignated area. By allowing OHV use to disperse across an area, the potential inputs of VOCs, hydrocarbons and fecal coliform should be lower in localized concentrations. The actual magnitude of these effects is uncertain, but is expected to be long term and depends on the future OHV density patterns in these areas. Heavier OHV use on trails and areas of OHV congregation in reallocated management areas would increase concern for VOC, hydrocarbon and fecal coliform input. Also, soil displacement (by OHV and wind over denuded soil) and soil water holding capacity could also increase in areas of use, but would be a localized minor long term effect. OHV use in vegetated areas would cause vegetation die back leading to reduced organic matter input into the soil over time which would slow the soil development and lower local iron input into the groundwater. The magnitude of the effects of soil displacement, soil development and soil water holding capacity are dependent on the level of OHV use concentration, but would be minor long term effects. If current trends foretell future use, impacts in these areas would be relatively minor based on the nature of this dune system (dynamic system of moving soil, low soil development and low water holding capacity).

Alternative 5 would reallocate the most acreage (966) from management area 10 (C) to management area 10 (B). This alternative would have the most wide spread OHV impact on water and soil. By reallocating the most area, alternative 5 would disperse the possible effects of concentration over a wider area. Alternative 5 would also designate 2.9 miles of routes which would be comparable to alternative 3 (3.6 miles) and alternative 2 (3.4 miles) and thus would share similar (in magnitude and duration) effects in these areas if no reallocations were selected.

Cumulative Effects for all Alternatives

All past projects in these watersheds do not overlap in space and time with this proposed project except for the Riley Ranch Access Project and the OHV Sand Camping Project. Information on these projects can be found on the Siuslaw National Forest Website or in project file at the CCRD/ODODNRA Waldport office. Both the Riley Ranch and OHV Sand Camping Projects have Decision Notices stating the finding of no significant impact. In my review of these projects, I have found no instance where there would be a cumulative significant impact by the implementation of the 10 (C) Designated Routes Project to either soil or hydrologic processes. Any possible additive effects of the combined implementation of these projects would be minimal in the comparison to each projects individual implementation.

A foreseeable project in the near future is a dune restoration plan. This plan would ultimately propose a plan to manage invasive vegetation more effectively. Currently, invasive vegetation is changing the nature of this dynamic dune system to a more static system by hindering sand movement. If a plan is developed that would ultimately restore sand movement, the more historical functioning system would allow more sand movement than the OHV use that is proposed in this project. Due to the fact that this plan has yet to be developed and is only a near foreseeable project, the exact cumulative effects cannot be calculated.

Aquatic Conservation Strategy

Background

The Aquatic Conservation Strategy (ACS) was developed as part of the Record of Decision for Amendments to Forest Service and Bureau of Land management Planning Documents Within the Range of the Northern Spotted Owl (Northwest Forest Plan). The purpose of the ACS is to restore and maintain the ecological health of watersheds and aquatic ecosystems contained within them on public lands. The Northwest Forest Plan requires that a decision maker must find that the proposed management activity is consistent with the ACS.

Management Direction

The Northwest Forest Plan amended the Siuslaw National Forest Land and Resource Management Plan and established the ACS. The ACS has several components including the establishment of nine ACS Objectives and the designation of Riparian Reserves with a series of Standards and Guidelines. The nine objectives are:

- Objective 1--Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations, and communities are uniquely adapted.
- Objective 2--Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life-history requirements of aquatic and riparian-dependent species.
- Objective 3 --Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.
- Objective 4--Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.
- Objective 5--Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.
- Objective 6--Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows must be protected.
- Objective 7--Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.
- Objective 8--Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability.

- Objective 9--Maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species.

Riparian reserves are divided into five categories each with their own designated widths. These five areas are fish-bearing streams; perennial non-fish-bearing streams; constructed ponds and reservoirs, and wetlands greater than one acre; lakes and natural ponds; and seasonally flowing streams, wetlands less than one acre, and unstable and potentially unstable areas.

Applicable recreation Standards and Guidelines for the 10 (C) project include:

- RM-1. New recreational facilities within Riparian Reserves, including trails and dispersed sites, should be designed to not prevent meeting ACS objectives. Construction of these facilities should not prevent future attainment of these objectives. For existing recreation facilities within Riparian Reserves, evaluate and mitigate impact to ensure that these do not prevent, and to the extent practicable, contribute to attainment of ACS objectives.
- RM-2. Adjust dispersed and developed recreation practices that retard or prevent attainment of ACS objectives. Where adjustment measures such as education, use limitations, traffic control devices, increased maintenance, relocation of facilities, and/or specific site closures are not effective, eliminate the practice or occupancy.

Relevant Issues

Application of the ACS to the 10 (C) areas of the Oregon Dunes National Recreation Area presents a unique challenge. Historically most of the 10 (C) areas being considered for rezone or route designation consisted of open sand dunes with limited and sparse vegetation. Waterbodies in these areas were limited to ephemeral ponds and intermittent streams that did not support riparian or wetland vegetation. However, since to the introduction of European beach grass and scot's broom, and planting of native shorepine, nearly half of the open sand that was present in the early 1950s is now vegetated. Of particular note is vegetation now inhabiting the deflation plain behind the foredune. This area, which historically consisted of low, transverse dunes, now forms a wetland containing many native plant and animal species that has all the attributes and benefits of other wetlands. This causes the nine Objectives of the ACS and the underlying principles on which the objectives are based to be somewhat in conflict with each other when applied to the 10 (C) areas of the ODNRA.

The underlying principles rely on natural processes at landscape scales as a guide to maintaining and restoring aquatic habitats, but this philosophy also applies to upland processes as well. In the case of the 10 (C) areas, the underlying principles would guide management towards restoring the open sand environment at the cost of eliminating wetlands that are ostensibly protected by the nine Objectives. This raises the questions 'If and when does restoring upland processes trump protecting aquatic resources' and 'How much protection should be given to aquatic habitats in areas where they did not previously or naturally exist, but where no decision has been made to eliminate them.'

Because of the apparent conflict in direction of the ACS, compliance of each of the alternatives with the nine Objectives will be evaluated using, in part, rationale based on the underlying principles of the ACS. Listed below are three of these overarching principles.

- The ACS was developed to restore and maintain the ecological health of watersheds and aquatic ecosystems contained within them on public lands.
- The ACS employs several tactics to approach the goal of maintaining the “natural” disturbance regime.
- The ACS strives to maintain and restore ecosystem health at the watershed and landscape scales to protect habitat for fish and other riparian-dependent species and resources, and restore currently degraded habitats.

Evaluation of the ACS Objectives

Within the MA 10 (C) areas, OHVs can affect riparian reserves, including non-natural wetlands, wherever a designated route passes through a riparian reserve or where OHV use is allowed in riparian reserves, such as in some proposed rezone areas. The miles of proposed new designated routes and amount of rezone within riparian reserves – or areas of overlap – vary by alternative. However, the amount of overlap for each alternative is always less than the existing condition. A ranking of the amount of overlap, from greatest to least, is: existing condition > Alt. 5 > Modified Alt. 4 > Alt. 4 > Alt. 2 > Alt. 3 > Alt. 1. Note that alternatives 2 and 3 are not in numerical order and that Alternative 2 has more overlap than Alternative 3.

Neither the existing condition nor any of the proposed alternatives would eliminate OHV use or potential for impacts to riparian reserves. However, potential for impacts to riparian reserves, by themselves, do not determine if an alternative is in compliance with the ACS, but rather, as described in the preceding section, the underlying principles of the ACS also need to be considered. Below, each of the nine ACS Objectives are evaluated.

Objective 1--Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations, and communities are uniquely adapted.

Open sand dunes were historically the primary landscape-scale feature of the MA 10 (C) areas being considered for reallocation or route designation within the ODNRA. The open sand is slowly disappearing due to encroaching non-native vegetation. Off-highway vehicles have a minor ability to limit encroaching non-native vegetation on the open dunes. Reduction in the amount of OHV use in MA 10 (C) areas with implementation of any of the alternatives would allow easier spread of the non-native vegetation, although the amount of increase in spread is expected to be small and not measurable compared to the existing condition. Because reduction in OHV use with implementation of any of the alternatives would not substantially alter the fate of the colonization of the open sand by non-native vegetation, all the alternatives are consistent with this Objective.

Objective 2--Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life-history requirements of aquatic and riparian-dependent species.

Spatial and temporal connectivity of watersheds would not be affected by implementation of any of the alternatives. Reduction in OHV use in MA 10 (C) areas caused by implementation of any of the alternatives would not substantially increase the rate at which open sand is disappearing or

alter the natural types of connectivity open sand provides. For this reason all of the alternatives are consistent with this objective.

Objective 3 --Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.

The physical nature of the aquatic system has been and is continuing to be changed due to the unnatural encroachment of vegetation. In the past, waterbodies in the MA 10 (C) areas being considered for rezone or route designation had banks and shorelines consisting mostly of unstable sand. Today many of these waterbodies have stable, vegetated banks and shorelines. Off-highway vehicle use has little effect on the natural, unstable banks but can cause erosion of the newer, stable banks. However, because these newer, stable banks are only present due to the unnatural encroachment of vegetation, erosion of these banks by OHVs is not in conflict with the natural physical integrity of the aquatic system. For this reason all of the alternatives are consistent with this objective.

Objective 4--Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.

Water quality can be degraded due to inputs of hydrocarbons and heavy metals released from OHVs. This includes grease, oils, and gasoline from minor leaks, to accidental spills. Hydrocarbons may at times be detectable in waters of the MA 10 (C) areas, but they are not currently known to be levels that are harmful. This is probably due to the small amount of hydrocarbons released and the large volume of water available for dilution on the Oregon Coast. We do not expect this situation to change under any of the alternatives and thus, all the alternatives are consistent with this objective. Because water quality is not currently degraded, and because all of the alternatives would reduce the amount of OHV use in MA 10 (C) areas below the existing condition, all of the alternatives are consistent with this Objective.

Objective 5--Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.

The sediment regime has been altered over the last fifty years due to the stabilization of sand dunes, streambanks, and lakeshores by encroaching non-native and native vegetation. Off-highway vehicle use is currently having little effect on hindering the increase in encroaching vegetation, or on its influence on the sediment regime. The amount of sediment input from OHV traffic is less than that which would have historically occurred due to wind. The sandy nature of the sediment produced by either wind or OHVs settles out of the water column in a few seconds leaving no residual turbidity. All of the alternatives would further restrict the extent of OHV use in MA 10 (C) areas. Because none of the alternatives would measurably alter the steady change that is occurring to the sediment regime from encroaching vegetation, all of the alternatives are consistent with this Objective.

Objective 6--Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows must be protected.

None of the alternatives would affect in-stream flow and therefore all of the alternatives are consistent with this Objective.

Objective 7--Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.

European beach grass created an unnaturally high foredune that has blocked the inward migration of sand from the beach. This has led to the creation of a larger, more permanent deflation plain and “exposure” of the water table over a larger area than would naturally occur. Off-highway vehicle traffic is having only a limited effect on the encroaching vegetation in these areas and is having little, if any, effect on exposure of the water table. Floodplains in the classic sense would not have existed in unstable, shifting sand dunes. Floodplains may be developing in areas where encroaching vegetation has stabilized the sand next to flowing water such as where Cleawox Creek flows through the deflation plain. Off-highway vehicle traffic is, again, having only a limited effect on the encroaching vegetation in these areas and is having little, if any, effect on the development of floodplains.

Off highway vehicle traffic within MA 10 (C) areas would decrease by various amounts under the proposed alternatives. The amount of decrease in OHV traffic that would be caused by implementation of any of the alternatives would have little effect on the encroaching vegetation and therefore little effect on changes that are already occurring to water table exposure and floodplain development. Because none of the alternatives, if implemented, would have any measurable effect on water tables or duration of floodplain inundation, all of the alternatives are consistent with this Objective.

Objective 8--Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability.

Due to the introduction of European beach grass, riparian plant communities are developing in areas previously dominated by open sand. Off-highway vehicle use is currently having little effect on hindering the increase in riparian vegetation and all of the alternatives would further restrict OHV use in MA 10 (C) areas. None of the alternatives would prevent development of riparian or wetland plant communities and, therefore, all of the alternatives are consistent with this Objective.

Objective 9--Maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species.

Habitat for riparian dependent species continues to develop as riparian and wetland plant communities continue to colonize open sand. Because OHV use is currently having little effect on the increase in riparian vegetation, it will have little effect on habitat development. Off-highway vehicle use in MA 10 (C) areas would be further restricted under all of the alternatives. For these reasons all of the alternatives are consistent with this objective.

To summarize, all of the proposed alternatives meet the intent of and are compliant with the ACS and its nine objectives.

Executive Order 11990--Protection of Wetlands

All of the alternatives reduce to some degree the extent of open riding area and miles of trail riding available to OHV users in wetland areas when compared to the existing condition. European beach grass created an unnaturally high foredune that has blocked the inward migration of sand from the beach. This has led to the creation of a larger, more permanent deflation plain and “exposure” of the water table over a larger area than would naturally occur. Wetlands would not have existed in unstable, shifting sand dunes. Wetlands may be developing in areas where encroaching vegetation has stabilized the sand. Off-highway vehicle traffic is having only a limited effect on the encroaching vegetation in these areas and is having little, if any, effect on wetlands. Off highway vehicle traffic within MA 10 (C) areas would decrease by various amounts under the proposed alternatives. The amount of decrease in OHV traffic that would be caused by implementation of any of the alternatives would have little effect on the encroaching vegetation and therefore little effect on changes that are already occurring to wetland development. Because none of the alternatives, if implemented, would have any measurable effect on water tables or duration of wetlands, all of the alternatives fulfill the agency’s responsibility to preserve and enhance the natural and beneficial values of the wetlands it manages.

Inventoried Roadless Area

The designation of motorized trails in an inventoried roadless area is allowed. The 2001 Roadless Rule does not apply, because the Rule only prohibits the construction and reconstruction of roads and the harvest of timber. The designation of a motorized trail is not prohibited in the Rule. On January 12, 2001, the Federal Register published the Roadless Area Conservation Final Rule, 36 CFR Part 294. It states: “A trail is established for travel by foot, stock, or trail vehicle, and can be over, or under, 50 inches wide. Nothing in this paragraph as proposed was intended to prohibit the authorized construction, reconstruction, or maintenance of motorized or nonmotorized trails that are classified and managed as trails pursuant to existing statutory and regulatory authority and agency direction (FSM 2350). Nor was anything in this paragraph intended to condone or authorize the use of user-developed or unauthorized roads or trails. These decisions are made subject to existing agency regulations and policy and that intent has been retained in the final rule.” (FR page 3251).

A Wilderness Suitability Report, Oregon Dunes National Recreation Area (ODNRA), was completed on September 30, 1976. An analysis of all lands within the ODNRA determined that no portion of the Act meets the requirements for wilderness as stated in The Wilderness Act, P.L. 88-577. The Forest Service proposed that the Secretary of Agriculture convey to the President the recommendation that no lands within the ODNRA be designated as wilderness and added to the Wilderness Preservation System (USFS, 1976).

The Final Environmental Statement on Wilderness Suitability, Oregon Dunes National Recreation Area, was completed on January 10, 1977. It found that no area was suitable for wilderness (USFS, 1977).

Although no construction of designated routes is proposed, the designation of motorized trails was tested in court (*Umpqua Watershed v. USFS*, 2010) with the Riley Ranch Access project (USFS, 2009) and was found consistent with Roadless Area Conservation Rule.

Economics (Economist, USFS 2011)

Background

The contribution of the ODNRA to the economies of local communities and nearby counties derives almost entirely from the numbers of people that visit the ODNRA and spend money while in the local area. Traffic counts of vehicles entering the primary access corridors into the ODNRA indicate that recreation use and visitation to the ODNRA has remained essentially flat for the past decade. Visitation to the ODNRA fluctuates slightly from year to year based on a variety of factors, such as weather, price of fuel, timing of holidays, general economic conditions, other recreation choices available, etc. Averaging across these yearly fluctuations, annual ODNRA visitation is approximately 1.1 million visitors.

National Visitor Use Monitoring (NVUM) surveys on the Siuslaw National Forest in 2002 and 2006 indicate that about 30% of Forest visitation is by people who identify off-highway vehicle (OHV) use as their primary reason for visiting. Results from 2011 NVUM sampling are not yet available. Visitors identifying other primary purposes for their visit, such as camping, relaxing or driving for pleasure may also participate in off-highway vehicle use while at the ODNRA. The 30% OHV use figure across the entire Forest is almost certainly higher when considering just the ODNRA. However, limitations of the sample design do not allow statistically valid disaggregation of visitor use monitoring results below the Forest level. Thus, while it is not possible to know exactly, it is likely that OHV visitors to the ODNRA probably total around 650,000 annually. A 2011 Forest Service economic analysis concludes that OHV use at the ODNRA contributes about \$2.5 million annually to the three counties within which the ODNRA is located (Coos, Douglas and Lane). It accounts for about 82 jobs within the three-county area.

Indirect and Direct Effects

The six alternatives being considered in this action represent six different future management scenarios. All six are a change from the current management. Predicting, with certainty and accuracy, whether specific management changes will lead to changes in off-highway vehicle visitation and thus changes in OHV economic contributions to local communities and counties is not possible. Too many variables, many beyond the Forest's control, contribute to peoples' decisions about how, when and where they recreate to make accurate prediction of the direction and magnitude of visitation changes possible. Further confounding the situation is that the variables do not operate independently, but rather in consort with each other. A simple example to illustrate this would be, in a year of inexpensive fuel, visitation may still decline if the weather is not good and/or if people are not optimistic about the general health of the economy. Adding another variable, such as "changed management direction," to the existing mix of factors affecting OHV visitation further complicates an already unpredictable situation.

In addition to the difficulty of predicting potential changes that may result to the current visitor population from changed management, there is also the phenomenon of replacement or back-fill that often occurs and further confounds the accurate determination of economic effects. In this situation, when one type of recreation use or visitation in an area declines, it creates a changed condition can cause some other type(s) of recreation visitation to increase and thus offset some or all of the initial loss.

While accurate predictive models for changes to OHV visitation and the resultant economic consequences for local communities based on changes in management do not exist, it is possible to look back at similar historic situations to gain insight as to what might happen. In 1994, a new Oregon Dunes Plan established several important management changes for OHV use at the National Recreation Area. Among those changes were night-riding curfews, stricter OHV noise standards, campground quiet hours, prohibitions on operating OHVs on paved roads, closure of some previously open sensitive habitat areas and others. Some who commented at the time predicted the new changes would drive OHV riders away and thus, adversely affect the local economy. That did not happen. OHV use of the ODNRA did not decline and there were no significant economic impacts noted to nearby communities and counties.

In 2003, because of some serious unacceptable visitor behaviors, primarily in the open sand and largely related to irresponsible alcohol use while operating vehicles, the Forest imposed an alcohol prohibition in the OHV portions of the ODNRA on the sand, outside the developed campgrounds and OHV staging areas. This was done primarily to improve safety for visitors and Forest employees working in these areas. Again, there were concerns that management changes would decrease OHV visitation and cause adverse economic effects on nearby communities. Those concerns did not materialize.

Finally, in 2005, because of visitor safety issues and some unacceptable behaviors at some of the undeveloped sand-camping areas within the ODNRA, the Forest instituted a designated-site sand camp system within the motorized portions of the ODNRA. It was implemented to improve visitor accountability for resource damage, trash, public safety, and other issues of concern at undeveloped camps within the sand. During the planning phase for that effort, there were some who maintained that implementing further restrictions on OHV use would cause people to not visit and thus create adverse economic impacts on local communities and counties. That did not happen.

In spite of many ODNRA management changes for OHV visitors over the past almost 20 years, the area has remained one of the premier OHV riding areas in the country and people continue to come from long distances to ride the dunes and spend money in the local area. There literally are no other places like it for OHV recreation.

It is the large open-sand-area unrestricted riding opportunity at the Oregon Dunes that is the most unique. Large areas, in a beautiful, natural-appearing setting and allowing essentially unrestricted riding are not found in many other places in the Pacific Northwest or the nation. That opportunity will not be changed by any of the five alternatives being considered in this action and will continue to be a strong magnet for many riders to come to the Oregon Dunes.

Summary

Multiple variables, including management conditions, but also many factors beyond the control of the Forest affect peoples' recreation use and visitation decisions. There are currently no reliable, accurate models that predict how a change in one variable, such as management conditions, will affect visitation and its associated economics. It is also unclear whether if OHV use were to decline as a result of this action, there would be replacement/back-fill by different OHV users or other types of recreationists, and to what extent. Based on similar past situations at the ODNRA where noticeable declines in OHV use or economic contributions to local communities did not occur, as well as the fact that the most unique and attractive OHV riding

opportunities at the ODNRA are not affected by any of the alternatives, it is difficult to conclude that there will be significant OHV displacement or significant negative economic affects as a result of this action, regardless of the alternative selected. Thus, the economic contributions from OHV use at the ODNRA are likely to remain similar to current levels under any of the alternatives being considered in this action.

Heritage Resources

Background research for cultural resources was conducted for the project, including a thorough review of relevant historic records, reference literature, and cultural resource files on the Siuslaw National Forest. The Forest Archaeologist reviewed the list of proposed actions and assessed their potential to effect historic properties according to the terms of the *2004 Programmatic Agreement between the USDA Forest Service, Pacific Northwest Region (Region 6), the Advisory Council on Historic Preservation, and the Oregon State Historical Preservation Officer (PA)*.

The proposed actions analyzed for the current project are covered under Appendix B of the PA, which means that the undertaking(s) may be excluded from case-by-case review with the State Historic Preservation Office (SHPO) based on inspection or monitoring as determined by the Forest Archaeologist. Specifically, under Appendix B:14 of the PA it is noted that:

“Off-highway vehicle (OHV) trail designations that utilize existing roadways and trailways provided that no properties have been recorded within or adjacent to the roadways or trailways.”

It was determined that the proposed designation of routes that utilize existing trailways and the proposed reallocation of MA 10 (C) to MA 10 (B) in Alternatives 2, 4, Modified 4 and 5 meet the condition for review under Appendix B of the PA and are subject to pre-implementation inspection and/or monitoring as determined by the Forest Archaeologist.

Consequently, field inspection of the project area, including designated routes in all alternatives and user-developed routes in areas to be reallocated from MA 10 (C) to MA 10 (B), was conducted by the Forest Archaeologist during the spring of 2011 and spring of 2012. The field survey identified no heritage resources within or adjacent to the project area.

Direct and Indirect Effects

Under all alternatives there would be no effect to heritage resources because none have been identified within the project area. The only impact to heritage resources would be from continued trail use in areas where previously unidentified heritage resources exist but were not identified during field inspection or past heritage resource surveys.

Down cutting into stabilized dune deposits is an effect of motorized vehicle use on trails, so there is potential for previously unidentified archaeological deposits to be exposed in the future. The relative risk to unidentified heritage resources can be ranked according to the miles of new designated routes proposed in MA 10 (C) and the miles of user-developed trails in areas reallocated from MA 10 (C) to MA 10 (B).

Alternative 1 (no action) would pose the least potential impacts to previously unidentified heritage resources because all user-developed routes would be closed to motorized use. Enforcement of the Motor Vehicle Use Map (MVUM), which does not include user-developed routes, would also occur if this alternative is selected. The existing condition has been no

enforcement of the MVUM, allowing the use of approximately 135 miles of user-developed trails.

The remaining alternatives would all be a reduction in potential heritage resource impacts, since each would greatly reduce the amount of user-developed trails currently being used and not enforced as closed under the MVUM. Other than the no action alternative; Alternative 3 would pose the least potential impacts to previously unidentified heritage resources reducing the amount of user-developed trails by 98%. Alternatives 2, 4 and Modified 4 would reduce the amount of user-developed trails by 75% and 60%; while Alternative 5 would retain the highest amount of current user-developed trails with a 54% reduction, and pose the most risk to previously unidentified heritage resources.

In conclusion no known heritage resources would be impacted by the actions proposed in the analyzed alternatives. If previously unidentified heritage resources are identified within the project area in the course of continued motorized use of designated trails and user-developed trails within the reallocated MA 10 (C) to-MA 10 (B) areas, design criteria are in place to protect those resources.

Engineering

An engineer was part of the Interdisciplinary Team throughout the planning process. Engineering input is captured in the Project Design Criteria Appendix. Limited input was needed because all designated routes proposed are existing user-developed routes needing little, if any improvement to meet Trail Class 2 Standards.

Environmental Justice

Executive Order 12898 directs each Federal agency to make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. This order is accompanied by a memorandum, emphasizing the need to consider these types of effects during NEPA analysis. Where Forest Service proposals have the potential to disproportionately adversely affect minority or low-income populations, these effects must be considered and disclosed (and mitigated to the degree possible) through the NEPA analysis and documentation. Restrictions on motor vehicles necessary to protect the environment and applied equally to all visitors, are not discriminatory.

Short-term Uses and Long-term Productivity

NEPA requires consideration of “the relationship between short-term uses of man’s environment and the maintenance and enhancement of long-term productivity” (40 CFR 1502.16). As declared by the Congress, this includes using all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans (NEPA Section 101).

The continued unmanaged OHV use on the ODNRA would result in long-term adverse effects on a broad range of resources including native botanical species, wildlife and wetlands.

Unmanaged OHV use would also lead to increased conflicts with non-motorized recreationists and noise impacts to local communities. These problems would consider increasing as the popularity of OHV use grows and more users come to the ODNRA. The cost of implementing a managed OHV system on the ODNRA and mitigating previous damage would continue to increase as the damage associated with unmanaged OHV use continues.

The environmental consequences discussions related to the relationships between short-term uses and long-term productivity as it relates to OHV use is described throughout this DEIS, primarily in each of the resources discussed in Chapter 3. Chapter 3 discusses the relationship between land management activities and OHV use, as well as describes the effects of the proposed OHV routes and areas on the resources.

Irreversible and Irretrievable Commitments of Resources

Irreversible commitments of resources are those that cannot be regained, such as the extinction of a species or the removal of mined ore. Irretrievable commitments are those that are lost for a period of time such as the temporary loss of timber productivity in forested areas that are kept clear for use as a power line rights-of-way or road.

Implementation of any of the alternatives would not produce irreversible or irretrievable commitments of resources. All of the alternatives would be implemented within the constraints of the Project Design Criteria described Chapter 2, and other national and regional management direction (which incorporate applicable laws, regulations and policies). Adverse effects associated with OHV use described in Chapter 3 are likely to be long-term. However, the effects of implementing any alternatives, including No Action, are substantially lower than continuing with the current condition.

Other Required Disclosures

NEPA at 40 CFR 1502.25(a) directs “to the fullest extent possible, agencies shall prepare environmental impact statements concurrently with and integrated with ...other environmental review laws and executive orders.”

- This environmental impact statement is tiered to the Siuslaw Forest Plan FEIS, as amended by the Northwest Forest Plan, and is consistent with those plans and their requirements.
- None of the alternatives would affect minority groups, women, and consumers differently than other groups. These groups may benefit from employment opportunities and by-products that proposed actions would provide; the no-action alternative would have neither adverse nor beneficial effects. None of the alternatives adversely affects civil rights. All contracts that may be awarded as a result of implementation would meet equal employment opportunity requirements.
- None of the proposed actions would affect known prehistoric or historic sites because no new disturbance on previously undisturbed ground is expected. As outlined in the American Indian Religious Freedom Act, no effects are anticipated on American Indian social, economic, subsistence rights, or sacred sites.
- No adverse effects on wetlands and flood plains are anticipated; and no farm land, park land, range land, wilderness, or wild and scenic rivers would be affected (Executive Orders 11990 and 11988).

- The Project is within an inventoried roadless area, but would not impact roadless areas or degrade the quality of roadless areas.
- The proposed project is consistent with the Coastal Zone Management Act because there are no reasonably foreseeable Project effects on uses and resources located inside those boundaries.
- None of the proposed actions are expected to substantially affect human health and safety.
- Proposed activities are consistent with the Clean Air Act because effects from activities.
- Because of the design criteria to be applied (Appendix A), this project is expected to be consistent with the Clean Water Act.
- The proposed project is not expected to measurably affect global warming. The US Forest Service will continue an active leadership role in agriculture and forestry regarding the reduction of greenhouse gas emissions (Joyce and Birdsey 2000).
- These actions do not set a precedent for future actions because they are similar to actions implemented in the past.

CHAPTER 4. CONSULTATION AND COORDINATION

Preparers and Contributors

The Forest Service consulted the following individuals, Federal, State, and local agencies, tribes and non-Forest Service persons during the development of this environmental impact statement:

ID TEAM MEMBERS:

Angie Morris	Recreation Planner, Team Lead
Marty Stein	Botanist
Justin Fenton	Hydrologist
Mike Northrop	Fisheries Biologist
Cindy Burns	Wildlife Biologist
Kevin Bruce	Archaeologist
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Greg Moore	Patrol Captain
Brent Hasty	GIS
Mike Harvey	Recreation Staff Officer (retired)
Stacey Forson	Recreation Staff Officer
Frank Davis	Forest Planner

FEDERAL, STATE, AND LOCAL AGENCIES:

National Marine Fisheries Service (or NOAA Fisheries)

The National Marine Fisheries Service (NMFS) was informed of the Project's proposed actions during the initial public notification process. The Biological Evaluation determined there was "no effect," and therefore does not require consultation.

US Fish and Wildlife Service

A Biological Assessment under preparation for submittal to the US Fish and Wildlife Service for consultation.

US Congressional Representatives

During the initial scoping, Senators Jeff Merkley and Ron Wyden, and Representatives Peter DeFazio and Kurt Schrader were contacted about the proposed project. No comments were received from them.

State of Oregon

The Project was evaluated under the programmatic agreement with the State Historic Preservation Office (SHPO). The Project is consistent with the applicable criteria in the programmatic agreement.

The Oregon Parks and Recreation Department and Oregon Department of Fish and Wildlife were notified about the proposed project. No comments were received.

Tribes:

The Confederated Tribes of Coos, Lower Umpqua, and Siuslaw were informed of the Project's proposed actions. A comment was received in support of the project.

Local Governments

County commissioners; mayors of Coos Bay and North Bend; city managers of Reedsport and Florence; and the Coos Bay-North Bend Water Board were notified. A comment letter pertaining to the OHV Working Group's recommendations was received from the Lane County Board of Commissioners.

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